AFIT/GCM/LSM/92S-9

A STUDY OF THE RELATIONSHIP BETWEEN PERSONALITY CHARACTERISTICS AND ETHICAL SENSITIVITY IN BUSINESS

THESIS

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THESIS

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Dave Petrillo

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Abstract

This research establishes a significant relationship between ethical sensitivity, which is the perception that a situation requires ethical considerations, and personality type, as characterized by the Myers-Briggs Type Indicator (MBTI). A simple random sampling from the membership of the National Contract Management Association (NCMA) yielded 466 responses. The sample was analyzed by segmentation into government (181) and private industry (285) respondents.

The average ethical sensitivity response of 5.28 out of seven is considered high. Differences in perceptions of ethical sensitivity were significant among government and industry segments, and among ten scenarios often faced by contracting professionals. In the majority of scenarios, the government segment reported higher ethical sensitivities than the industry segment. Industry reported higher ethical sensitivities to one question involving an arithmetic error causing a loss to the contractor.

There was a significant difference in the MBTI distribution of this sample compared to that of the Center for the Application of Psychological Type (CAPT). The research sample contained more introverted, sensing, and thinking types.

Among the government segment, those favoring intuition, and intuition and thinking as their set of cognitive functions, exhibit higher degrees of ethical sensitivity than other personality types.

Recommendations for additional research are provided.

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I. Introduction

During the 1980s, the media exposed the public to several scandals involving the defense industry. In 1991, UNYSIS Corporation was found guilty of civil and criminal charges of conspiracy to defraud the government, bribery, and filing false claims on government contracts. These convictions resulted in $190 million in fines, penalties, and relinquished profits. Meanwhile, the Ill-Wind investigations which helped to convict UNISYS also resulted in additional convictions of 51 persons, and six other companies for various forms of malfeasance on other defense contracts (UNYSIS Pleads Guilty, 1991:319). In 1990, Under Secretary of Defense for Acquisition John Betti resigned under fire after it was discovered that DoD officials misrepresented the extent and magnitude of the financial problems associated with the Navy's A-12 program (Montgomery, 1991:44). The program was subsequently canceled.

There have been similar occurrences in the Savings and Loan (S&L) Industry and among Wall Street's top brokerage houses. It is estimated that the Federal Deposit Insurance Company's bank fund has paid out $56 billion to the depositors of failed S&Ls and that an infusion of an additional $70 billion will be needed (Foust and McNamee, 1991:30-32). Michael Milken, a noted Wall Street stockbroker from the Drexel Burnham Company, pleaded guilty to six felony counts involving insider trading, paid fines and restitution totaling $600 million, and was sentenced to ten years in prison (Welles and Galen, 1990:30).

As a result, the ethical behavior of individuals and organizations has come under increased public scrutiny. In fact, according to a 1987 *Time Magazine* study, 76% of the American public saw a lack of business ethics in managers as contributing to the decline of U.S. moral standards (Laczniak and Murphy, 1991:261).

Significance to Government Acquisitions

In the midst of this turmoil, the federal government increased its regulatory interest in ethics, especially with regard to government, and particularly Department of Defense (DoD) acquisitions. *Public Law* 96-903, unanimously passed by Congress and signed into law in 1980, established a code of ethics for all government employees. The code contains ten basic principles including upholding the Constitution of the United States, exposing corruption whenever possible, and putting loyalty to the highest moral principles and to country above all else. These ten principles are listed in their entirety in Appendix A. In addition, Part 3 of the *Federal Acquisition Regulation* (FAR) contains further clarification and implementation procedures related to receiving or soliciting gratuities, disclosing proprietary information, post-employment restrictions of certain former and retired DoD employees, and other standards of conduct (Office of Federal Procurement Policy, 1990:16,307-16,341). The DoD became further involved in the area of regulating ethics when it issued Directive 5500.7, *Standards of Conduct*, in May 1987. The directive prohibits using inside information for personal gain, prohibits conflicts of interest, requires submissions of financial interest and affiliation statements, prohibits the release of acquisition information, restricts outside employment opportunities for DOD personnel, and establishes agency ethics officials and committees (DOD Standards of Conduct, 1987:1-24). In an attempt to provide further guidance to government procurement agencies and the defense industry, Congress passed the *Procurement Integrity Act* in 1989, which imposed both civil and criminal penalties for disclosing competition sensitive

information to unauthorized sources. Individuals found guilty of violations under this act are subject to fines of up to $100,000 and a maximum prison sentence of five years (Shillito and others, 1989:23).

With the passage of laws and the implementation of regulations, companies have recognized the importance of integrating ethical decision making into the corporate culture. According to a survey cited by Harrington, 63% of the Fortune 500 Chief Executive Officers believe that a strong ethical corporate culture is directly related to developing a strategic advantage that can result in long-term benefits and profitability (Harrington, 1991:21). Companies are concerned with unethical behavior because it can lead to adverse public opinion, governmental intervention in the form of oversight and regulation, adverse organizational costs in the form of lost profits and goodwill, monetary penalties, criminal penalties, and even the loss of contracts.

The Packard Commission's February 1986 Interim Report recognized that there was public concern over "procurement irregularities" and suggested that "effective self-governance might help to curb industry misconduct" (Defense Industry Initiative, 1988:1). In response to the Commission's preliminary recommendations, representatives from eighteen defense companies drafted six principles which are now known as the *Defense Industry Initiative on Business Ethics and Conduct* (DII). These six principles are contained in Appendix B. The signatory companies pledged to promote programs and policies associated with a code of ethics, ethics training, internal reporting of misconduct, self-governance, industry responsibility, and public accountability (Defense Industry Initiative, 1988:1). As of February 1991, fifty-five defense companies have become participants in the DII (Defense Industry Initiative, 1991:1).

Companies are not alone in recognizing the importance of promoting ethical awareness. Professional associations have also adopted codes for ethical behavior as part of their by-laws. For example, the National Contract Management Association (NCMA)

has established six ethical standards their members are obligated to uphold. These six standards are contained in Appendix C. The NCMA Code of Ethics promotes behavior and professionalism among its membership.

Ethical Sensitivity

Establishing, promoting, and encouraging ethical behavior in an organization is a complicated process which begins with an assessment of the ethical awareness of employees prior to implementation of a formal program. This ethical baseline is necessary for management to determine which areas of ethical consideration warrant their concern, and to develop appropriate methods to influence employee attitudes and behavior concerning ethical practices.

Ethical baselining requires management to assess its employees perceptions of the degree to which ethics and ethical considerations are a part of their daily work-related activities. This leads to a new ethical construct which is not addressed in ethics literature.

> The degree to which one perceives one's decisions and actions as being affected by necessary ethical judgments will be referred to as the individual's **ethical sensitivity**.

Take, for example, a situation where a contract administrator (CA) needs the signature of an administrative contracting officer (ACO) on a particular document. With the ACO unavailable and immediate completion of the document necessary, the CA is faced with the option of signing the ACO's name without his/her knowledge or permission. Ethical sensitivity **does not** address whether or not it is ethical to sign the ACO's name. Ethical sensitivity **does** address whether the CA perceives that the decision of whether or not to sign the name of the ACO is even a question of ethics. The CA may view this decision in terms of the propriety (right and wrong) or morality (good and bad) of signing the name, or may not even consider those issues and view it purely as a business decision involving

the practicality of getting the document processed and assuming the responsibility. The degree to which the CA believes that ethics are involved in the decision, regardless of what that decision is, is the degree of the CA's ethical sensitivity.

The range of ethical sensitivities among the employees of an organization establishes the baseline which management must consider in developing and implementing ethical training programs.

Specific Problem Area

Management, concerned about their employees' sensitivities to ethical issues involving job actions and decisions, should consider two questions in evaluating the organization's ethical baseline. First, what accounts for the differences in ethical sensitivity among employees? Second, is there an indicator which will accurately predict an individual's ethical sensitivity? The assumed notion is that management will be more effective if it understands the factors which bear upon an individual's ethical sensitivity and tailors programs to respond to those factors.

For example, an individual whose ethical sensitivity is strongly linked to a religious upbringing may respond favorably to an ethical awareness program which heavily stresses the moral implications of ethical behavior. With another individual, however, ethical sensitivity may be linked solely to the practical considerations of risk and risk avoidance. In this case, the program might be aimed at the negative repercussions of the discovery of unethical behavior.

Clearly the aim and emphasis of these two examples would be different. The discovery of some predictable indicator of an individual's ethical sensitivity would aid management in targeting groups of employees with like characteristics related to ethical sensitivity and structure programs which would effectively influence those groups.

Problem Statement

This research explores the notion that there are indicators which can help management predict the ethical sensitivity of an individual and understand the factors from which the sensitivity is formed. The indicator under consideration is personality type as characterized by the Myers-Briggs Type Indicator (MBTI) (Myers & Myers, 1980). This leads to the following problem statement, the answer to which is the objective of this research:

> Is an individual's personality type, as characterized by the MBTI, an accurate predictor of that individual's ethical sensitivity?

Among other measures, the MBTI model of personality type characterizes the way individuals perceive and judge the world. It recognizes that there are distinct processes for the functions of perception and judgment and observes that individuals will exhibit a preference toward one process over another when given a choice. Behavior patterns in individuals are affected by these functional preferences and the combination of preferences manifest themselves in behavioral patterns which can be characterized into distinct personality types.

The MBTI assumes that the preferences are influenced by both genetic and social factors. As such, the model is less concerned about the origin of these preferences, addressing itself more to the manifestation of these preferences in behavioral patterns which can then be recognized and understood. Application of the model involves the study of possible relationships between the functional preferences and combinations of preferences, as manifested by behavioral and attitudinal patterns, and various dependent variables, such as ethical sensitivity.

Research Question

This research investigates the possible existence of relationships between personality type and ethical sensitivity among contract professionals. The research question is stated as follows:

> What is the relationship between ethical sensitivity and personality type, as measured by the Myers-Briggs Type Indicator (MBTI), for contract professionals?

Personality type is chosen as the independent variable and ethical sensitivity serves as the dependent variable. The research tests for statistically significant relationships between these variables among a sampling of contract professionals from the membership of the National Contract Management Association (NCMA).

Subsidiary Questions

The first task of this research is to determine the degree to which contracting professionals apply ethical considerations to the judgment of their actions and decisions. The results of this analysis determines an individual's ethical sensitivity. Then, the sample is categorized by personality type and the components of personality type, as described by Myers-Briggs type theory, and related to ethical sensitivity to determine if statistically significant relationships are present. This analysis is guided by a series of subsidiary questions, some of which are pivotal to the answer to the fundamental research question. Pivotal subsidiary questions are those whose answers directly affect the answer to the research question.

The following are the subsidiary research questions for this analysis. Note that each question except the first can be formed into a hypothesis statement which can be tested by statistical analysis. Since the model of ethical sensitivity is a new one, the answer to the first question provides only descriptive information. There is no data about ethical sensitivity in the general population with which to compare it.

1. What are the characteristics of ethical sensitivity among survey respondents?

2. Is there a statistically significant difference in the distribution of personality type, as characterized by the Myers-Briggs Type Indicator, among survey respondents and the general population?

H_0: There is no statistically significant difference in the distribution of personality type, as characterized by the Myers-Briggs Type Indicator, among survey respondents and the general population.

3. Is there a statistically significant relationship between ethical sensitivity and the individual components of personality type, as characterized by the Myers-Briggs Type Indicator, among survey respondents (*pivotal*)?

H_0: There is no statistically significant relationship between ethical sensitivity and the individual components of personality type, as characterized by the Myers-Briggs Type Indicator, among survey respondents (*eight components of personality type are tested using this hypothesis statement*).

If question 3 indicates that statistically significant relationships exist between ethical sensitivity and one or more component of MBTI personality type, then these questions follow:

3A. Is there a statistically significant relationship between ethical sensitivity and specific combinations of personality components, as characterized by the Myers-Briggs Type Indicator, among survey respondents (pivotal)?

H_0: There is no statistically significant relationship between ethical sensitivity and combinations of personality components, as characterized by the Myers-Briggs Type Indicator, among survey respondents (*four combinations of personality components are tested using this hypothesis statement*).

3B. Is there a statistically significant relationship between ethical sensitivity and dominant function preferences, as characterized by the Myers-Briggs Type Indicator, among survey respondents (*pivotal*)?

H_0: There is no statistically significant relationship between ethical sensitivity and dominant function preferences, as characterized by the Myers-Briggs Type Indicator, among survey respondents (*four dominant personality components are tested using this hypothesis statement*).

3C. Is there a statistically significant relationship between ethical sensitivity and the sixteen personality types, as characterized by the Myers-Briggs Type Indicator, among survey respondents (*pivotal*)?

H_0: There is no statistically significant relationship between ethical sensitivity and the sixteen personality types, as characterized by the Myers-Briggs Type Indicator, among survey respondents (*sixteen personality types are tested using this hypothesis statement*).

Key Assumptions

This research accepts the validity of Myers-Briggs type theory as a model of personality type. The model and its survey instrument were developed and refined by Katherine Briggs and her daughter Isabel Briggs Myers and has been proven valid and reliable over scores of experiments. The evolution of the MBTI is further discussed in Chapter II.

This research also assumes that personality type as an indicator of ethical sensitivity will aide in understanding and influencing ethical attitudes and behavior in individuals. The influence may be possible through the development of more effective ethics education and training programs aimed at specific groups of differing ethical sensitivities. This seems a valid a priori conclusion, yet it should be understood that the researchers did not investigate the effectiveness of education and training programs as part of their review of the relevant literature.

While this research is driven by the examination of government acquisitions and the heightened awareness of ethical improprieties in that environment, a suggestion of a significant relationship between ethical sensitivity and personality type would be helpful in understanding ethical attitudes and behaviors in other areas of society. It is assumed that the desire to influence ethical attitudes and behaviors exists in other areas where there is potential to benefit society.

Limitations

This research was constrained by both cost and time. The survey of the NCMA membership was reasonable for its cost and schedule effectiveness. However, the conclusions drawn from this research must be limited to the population of contract professionals who are members of the NCMA. Generalizations outside of this population may not be supported by the data collected in this research and, therefore, may be limited in value.

The researchers cannot be certain that the NCMA population contains a fair representation of all MBTI personality types. No research exits which sheds light on the MBTI personality types of NCMA members, or if certain MBTI types are more or less likely to join the organization. As long as conclusions are limited to the NCMA membership, this is not a problem. However, as stated above, the research limits the ability to generalize the conclusions beyond the NCMA membership to the population of all contract professionals.

Summary and Overview

This introductory chapter has described an environment in the field of government acquisitions which is focused on a growing trend toward unethical behavior. This trend is leading management to consider the ethical sensitivity of its employees and the ways it may be understood and predicted so as to be more effectively influenced. From these management questions a research objective, problem statement, research question, and pivotal subsidiary questions with hypothesis statements were derived. Finally, the research assumptions and limitations were explained.

The next chapter provides a review of the relevant literature. It explores both the subjects of ethics and ethical behavior and the Myers-Briggs model of personality type, and shows how the literature supports the exploration of a relationship between the two.

II. Literature Review

Topic Statement

This review of relevant literature examines ethics, business ethics, and ethical decision making models. In addition, psychological type theory, as characterized by the Myers-Briggs Type Indicator, is reviewed. This review provides a basis for integrating ethical and psychological type theory.

Ethics

Ethics can be defined as "inquiry into the nature and grounds of morality where the term morality is taken to mean moral judgments, standards, and rules of conduct" (Taylor, 1975:1). Moral philosophies "provide standards to judge the act, the actor's intention, and the consequences of the act" (Ferrell and others, 1989: 56). Moral philosophies which relate to ethical theory can be classified in two main types: teleological and deontological (Beauchamp and Bowie, 1979:8).

Teleological philosophies deal with the moral worth of behavior. This worth is determined by the behavior's consequences (Ferrell and Gresham, 1985:89). A variation of this basic premise is utilitarian teleological theory which considers what is *good* or *right* based upon the comparative amount of good that is produced for all of society (Reideanbach and Robin, 1990:653). For example, a jury recently convicted Charles Keating for engaging in behavior that was considered not only unethical, but criminal because his activities led to personal gain at the expense of society. Another teleological philosophy is egoism which evaluates acts in terms of their consequences and what will provide the greatest good for the individual (Hunt and Vitell, 1986:6). The egoist is an opportunist who will use manipulation to promote self interest. The Wall Street insider

trading scandal demonstrated that individuals often choose to cooperate with federal officials by giving up the names of their so-called associates rather than facing possible criminal charges and incarceration. It was this type of self-interest mentality that eventually led to the arrest of Ivan F. Boesky.

Deontological theory focuses on satisfying obligations or commitments by applying logic and determining the best set of rules by which to live (Hunt and Vitell, 1986:6). The fundamental basis for deontological theory is that the focus of behavior is directed towards the individual rather than society (Ferrell, and others, 1989:57). One of the more familiar edicts of this theory is the *golden rule* which states that you should "act in a way that you would expect others to act toward you" (Laczniak and Murphy, 1991:264). The edict advocates that an individual's right should not be infringed upon regardless of the cost (Ferrell and others, 1989:57). The main difference between the two theories is that teleological theory focuses on the consequences of an action or behavior, whereas deontological theory focuses on the "inherent righteousness" of the behavior itself (Hunt and Vitell, 1986:6). Hunt and Vitell believe individuals engage in both teleological and deontological evaluations regarding ethical decision making and behavior (Hunt and Vitell, 1989:7). These two frameworks of philosophy are not considered mutually exclusive. Frakena suggests there exists a theory of a mixed system of ethics that determines what is right or wrong by taking into account rules of morality which guide the way an individual lives. The decision of which rules best apply to a situation is determined by fulfilling

> ....the joint requirements of utility and justice. This view is still faced with the problem of measuring and balancing amounts of good and evil and since it recognizes two basic principles, it must also face the problem of possible conflict between them. (Hunt and Vitell, 1986:7)

Morally right behavior must take into account values of the individual. Values can be defined as normative beliefs about proper standards of conduct and preferred or desired results. Values function as a mechanism for helping individuals understand and justify

their actions (Nystrom, 1990:971). Within a business context, however, the dividing line between what is right or wrong is not always clear.

Business Ethics

Business ethics can be defined in many ways. In simplest terms, business ethics is the interaction of ethics and business (De George, 1987:201). More extensive research conducted by Lewis examined 254 documents that contained 308 concepts relating to the definition of business ethics. Lewis synthesized what he considered to be the most common concepts mentioned about business ethics. He defined business ethics as "rules, standards, codes, or principles which provide guidelines for morally right behavior and truthfulness in specific situations" (Lewis, 1985:381).

In business firms, ethical conflicts are more likely to occur in the area of sales and marketing because individuals are often faced with trying to balance the demands of the company against the demands of the customer (Fritzsche, 1991:848). Harris stated "behaving honestly and fairly toward our customers is a moral action" (Harris, 1990:742). The business ethics aspect of behavior is scrutinized when an action of a company or individual is in conflict with society norms for behavior. People must also contend with the potential dilemma of compromising their own personal code of ethics against the pressures of organizations. A survey of Fortune 500 executives in marketing, finance, and production established that a majority of them admitted they felt pressure to compromise personal values in order to achieve organizational goals (Trevino, 1986:603). Still, organizations have come to realize that ethics and profit are not mutually exclusive (Stoner, 1989:38).

Ethical Decision Making Models

Managing ethical behavior, however, is one of the most complex and difficult issues facing business organizations today. Over the past several years, many companies have taken steps to improve the ethical quality of their business decisions. In another survey of Fortune 500 industrial and service companies, the Center for Business Ethics at Bentley College found that 80% of these companies have taken steps to incorporate ethical values as part of their companys' daily operations. If companies can develop an understanding of the ethical decision making process and the elements which comprise different ethical decision making models, then they may be able to understand what factors contribute to an employee's decisions or actions (Stead and others, 1990:233).

An examination of several models reveals that researchers have incorporated factors such as moral development, individual factors, situational factors, organizational factors, and the interaction between these factors to describe the ethical decision making process. The literature relevant to this research focuses on the individual factors that are contained within the ethical decision making models. Several models discuss personality factors as a contributor in the ethical decision making process, though none have considered personality types, such as those characterized by the Myers-Briggs Type Indicator (MBTI), as a component of the ethical decision making process. This research investigates the possibility of that correlation. In preparation toward that investigation, the following section will review the major elements of Kohlberg's Moral Development Model, Trevino's Person-Situation Interactionist Model, Ferrell and Gresham's Contingency Model, Stead and Worrell's Integrative Organizational Model, Hunt and Vitell's General Theory of Marketing Ethics Model, and Jones's Moral Intensity Model.

Personal Moral Development Model. Kohlberg's personal moral development model suggests that there are three broad levels of cognitive moral development which can be used to justify moral choice: *preconventional, conventional,* and *principled* (Trevino,

1986:605). The preconventional level is a stage of moral development where the individual is concerned with his or her own immediate interests and consequences, particularly external awards and punishments (Ferrell and others, 1989:58). At the conventional level good behavior takes into consideration the expectations of society and the individual's responsibility for upholding social order by doing one's duty (Laczniak and Murphy, 1991:265). The principled stage is where individuals determine what is right by following self-chosen universal ethical principles. The individual solves problems "in a manner that goes beyond the norms and laws" applicable to a "particular circumstance or situation," (Ferrell and others, 1989:58). The movement from one stage to the next is not guaranteed. Kohlberg estimates that less than 20% of American adults reach the third (principled) level of development (Trevino, 1986:606).

Person-Situation Interactionist Model. Trevino uses Kohlberg's stages of moral development as a component of her model and suggests that ethical decision making in organizations can be explained by the interaction of individual and situational components. In addition, the model focuses on situational moderators, organizational culture, and the characteristics of the work itself (Trevino, 1986:603). The individual's moral development stage will determine how an individual thinks about ethical situations (Trevino, 1986:602).

The individual variables of *ego strength, field dependence,* and *locus of control,* will influence the likelihood of an individual's acting on the perception of what is right or wrong. Ego strength is related to the strength of an individual to resist impulses and follow their convictions (Trevino, 1986:609). Field dependence relates to the autonomy individuals exercise when faced with an ethical dilemma. Those with higher field dependence will tend to rely on others to provide information to help remove ambiguity. Locus of control is another personality trait that may effect ethical behavior. It is considered a measure of how much control one can exert over the events in life. On one side there are internals who believe that they have the power to shape the events that

affect their life, while externals believe that life's events are beyond their control and are shaped by fate, luck, or destiny (Trevino, 1986:610).

Contingency Model. Ferrell and Gresham suggest that ethical decision making is multidimensional and process oriented. The major components of the model describe the interaction between the ethical situation and the characteristics associated with individual factors, significant others (peer groups or supervisors), and the opportunity to engage in unethical behavior (Ferrell and Gresham, 1985:88). The individual factors include knowledge, values, attitudes, and intentions. The basis for these factors is rooted in the moral philosophies that are characterized by teleological and deontological beliefs. These philosophies provide standards by which to judge the behavior, the individual's intentions, and the consequences of the act. The beliefs of the individual, in turn, affect the formation of attitudes and the intention of whether or not to engage in unethical behavior (Ferrell and Gresham, 1985:90).

Integrative Organization Model. Stead's integrated organization model attempts to show the relationships between various individuals and situational factors that can influence ethical behavior (Stead and others, 1990:234). The components of the model include individual factors, ethical philosophy, ethical decision ideology, ethical decision history, past reinforcement of ethical decisions, organizational factors, and external forces. The model of ethical behavior attempts to improve the understanding of both why employees behave ethically or unethically in organizations and what managers can do to influence this behavior.

When examining individual behavior research, findings suggest three personality measures which may influence ethical behavior: ego strength, locus of control, and, *machiavellianism* (Stead and others, 1990:234). Ego strength and locus of control have been previously defined as part of Trevino's model. Machiavellianism is a measure of one's deceitfulness related to one's thoughts, words, or actions. With regard to

socialization factors, researchers have identified sex role differences, religious beliefs, age, work experience, and nationality as factors which may influence the ethical decisions made by individuals.

General Theory of Marketing Ethics Model. Hunt and Vitell developed this model in an attempt to explain the decision making process for situations requiring ethical judgment. They suggest that an individual's ethical judgment is a function of both deontological and teleological evaluation. Other elements that contribute to the ultimate decision include cultural environment, industry environment, organizational environments, and personal experience. The individual must perceive that an ethical dilemma exists before the model can be applied. If there is an ethical dilemma, then the individual must assess the inherent rightness or wrongness associated with alternative solutions or possible actions. Another consideration is the perceived consequences of the alternatives, its impact on each stakeholder group (customer, employee, supervisor), and the probability that each consequence will occur to each stakeholder group. Therefore, an individual's ethical judgments involve the tradeoff between the perceived good and bad that can result from a situation based on individual norms of behavior (Hunt and Vitell, 1986:59).

Moral Intensity Model. Rather than focus on the characteristics of individuals, their beliefs, their moral development, or organizational environment, the moral intensity model focuses on the characteristics of the moral issue. Jones contends that ethical decision making is issue contingent and the characteristics of the moral issue itself (moral intensity) are important determinants influencing individual decisions and behaviors (Jones, 1991:371). The six elements of moral intensity are magnitude of consequences, social consensus, probability of effect, temporal immediacy, proximity, and concentration of effect.

Magnitude of consequences is based on a common sense understanding of human behavior. It assumes that an act which causes "1000 people to suffer a particular injury is

of greater magnitude of consequence than an act that causes 10 people to suffer the same injury" (Jones, 1991:374). Social consensus is the degree of social agreement that a proposed action is right or wrong, and whether the peer group views the behavior as ethical or not. Probability of effect describes the likelihood that the act in question will actually take place, and the probability it will cause the harm predicted. For example, US sales of short range ballistic missiles to Iraq has a greater probability of harm than similar sales the United Kingdom. Temporal immediacy states that the longer the time span between the action and the consequence of that action, the more likely reduced moral intensity will occur. Proximity describes the feeling of nearness the individual committing the action has for the people (beneficiaries or victims) affected by the act in question. Intuitively, individuals care more about people or actions which affect them or those who are close to them (Jones, 1991:376). Concentration of effect is the inverse relationship between the number of people affected and the magnitude of the act. For example, cheating an individual out of a given sum of money has a more concentrated effect than cheating a corporation out of the same sum (Jones, 1991:377). The author concludes the higher the moral intensity, the less likely an individual will behave in an unethical manner.

Summary of Ethical Decision Making Models

As evidenced by a review of several different models, the researchers have attempted to take into consideration the human element involved in the decision making process. Kohlberg attempts to describe ethical decision making in the context of an individual's moral development. Trevino expands on Kohlberg's model and describes the process as an interaction between the individual and situational components. Individual factors include the personality characteristics of ego, locus of control, and machiavellianism. Ferrell and Gresham's model suggests that an individual's moral beliefs, knowledge, value, attitudes, and intentions are a contributor to ethical decision making.

Hunt and Vitell's model includes factors such as personal experience, deontological evaluation, teleological evaluation, and ethical judgments that can affect ethical behavior. Jones's model concentrates on the elements of the moral issue itself and how the level of moral intensity affects the behavior of an individual.

A missing consideration from these models is the construct of ethical sensitivity as defined in Chapter I, and the notion that some model of personality type can be used to characterize an individual's perceptions and judgments relating to ethical sensitivity. It was proposed in Chapter I that management has an interest in the ethical sensitivities of its employees. The assumption was made that, as with the Integrative Organizational Model, an understanding and recognition of the differences in ethical sensitivities among employees would aide management in affecting ethical attitudes and behavior. Once again, consider the management questions proposed in Chapter I:

1. What accounts for the differences in ethical sensitivity among employees?

2. Is there an indicator which will accurately predict an individual's ethical sensitivity?

These questions suggest the notion that there exist factors which both explain and correlate to the level of an individual's ethical sensitivity. Since the literature does not address ethical sensitivity, there seems to be no starting point to begin the search for such factors.

Ethical sensitivity can be more broadly defined as a person's perception of a situation followed by a judgment of the degree to which ethics is involved in the resolution of the situation. To this extent, the way people perceive and judge might be factors to be considered in understanding individual levels of ethical sensitivity.

Jung's Theory of Psychological Type

As broad as the subject of why individuals perceive and judge things as they do might appear, there exists definitive research exploring the topic. In *Psychological Types*, published in 1923, Carl Jung suggested that perceiving and judging are functions which occupy the vast majority of an individual's mental energies (Campbell, 1971:24). Perception is the becoming aware of things while judgment is coming to conclusions about what is perceived. Jung contends that the vast majority of mental activity involves one or the other. Individuals perceive by performing some mental function characterized as resting somewhere along a continuum between sensing and intuiting. In a similar way, individuals tend toward either feeling or thinking when making judgments (Campbell, 1971:24-25). The cognitive functions of sensing, intuition, thinking, and feeling are discussed in greater detail later in this chapter. The combination of a perceptive function (either sensing or intuition) and a judgment function (thinking or feeling) results in a specific pattern of behavior which can be classified into four distinct psychological types. These psychological types are increased twofold when Jung suggests that one's attitudes are either subject-oriented (introversion), or object-oriented (extraversion) (Campbell, 1971:178). In all, Jung suggests that there are eight distinct psychological types which are characterized by the way individuals perceive and judge the world, and whether their orientation when doing so is introverted or extraverted.

Ethical Sensitivity and Psychological Type

If, as stated earlier, ethical sensitivity is defined as an individual's perception of a situation followed by a judgment of the degree to which ethics is involved in the resolution of the situation, then it is possible that ethical sensitivity is related to the way a person perceives and judges the world. As Jung characterizes these functions by psychological type, there is the suggestion that ethical sensitivity is somehow related to psychological

type. All that is left, then, is to find a way to measure both psychological type and ethical sensitivity in order to investigate the possibility of a correlation. Measurement of psychological type is introduced and developed by a review of the Myers-Briggs Type Indicator (MBTI).

The Myers-Briggs Type Indicator (MBTI)

The work of Katherine Briggs and her daughter, Isabel Briggs Myers, covers over forty years of observation and research. Their work is a further development of Jung's theories of psychological type and an application of those theories toward the development of a survey instrument the MBTI, which characterizes personality type based on survey responses. The purpose of the MBTI is clearly stated by Isabel Myers and Mary McCaulley in the introduction of the MBTI manual.

> The aim of the MBTI is to identify, from self-report of easily recognized reactions, the basic preferences of people in regard to perception and judgment, so that the effects of each preference, singly and in combination, can be established by research and put to practical use. (Myers and McCaulley, 1985:1)

This statement contains two of the three reasons the MBTI is chosen in this research for investigation into its possible correlation to ethical sensitivity.

First, the rationale on which personality type is developed, derived from Jung's theories of psychological type, proposes that attitudes and behaviors are distinguishable by the way people perceive and judge the world. The notion that ethical sensitivity is related to perceptions and judgments suggests the possibility of a correlation between ethical sensitivity and personality type. Analysis of such a correlation, which is the objective of this research, may ultimately provide a means of better understanding and recognizing the differences in the ethical sensitivities of individuals.

Second, Myers and McCaulley state that the value of personality typing is that it differentiates using functions which are basic and common to human experience.

> Since the MBTI is concerned with individual differences in basic functions and attitudes, the applications of the MBTI potentially cover a broad range of human activities. The differences described by the MBTI are a familiar part of everyday life. Jung's theory offers an explanation of these differences which makes it easier to recognize them and to use them in constructive ways. (Myers and McCaulley, 1985:4)

Successful applications of the MBTI include the areas of education, counseling, career guidance, cooperation and teamwork, and communications. In education, precedent has been set in using the MBTI to "develop different teaching methods to meet the needs of different types" (Myers and McCaulley, 1985:4). This suggests the possibility that understanding MBTI type as it may correspond to ethical sensitivities can help prepare ethical sensitivity training which will be more influential to those who receive it.

A third reason for use of personality type theory and the MBTI in this research is that it provides a ready research instrument that has been fully tested, refined, and proven valid and reliable. A history of the development is provided by Myers and McCaulley in the MBTI manual (Myers and McCaulley, 1985:140-146). Also detailed in the manual, but beyond the scope of this review, is the instrument's internal reliability, proven through use of the *split-half technique* and *test-retest* correlations (Myers and McCaulley, 1985:164-174). Instrument validity is proven by showing that (1) MBTI scores correlate with other instruments that measure the same Jungian constructs; (2) behavior of the MBTI types is consistent with that predicted by MBTI theory; and (3) knowledge of type differences contributes to the understanding of other issues of psychological importance (Myers and McCaulley, 1985:175-223).

Personality Type Theory

Isabel Myers and her son, Peter, open their definitive work on type theory, *Gifts Differing*, with the following passage:

> It is fashionable to say that the individual is unique. Each is the product of his or her own heredity and environment and, therefore, is different form everyone else. From a practical standpoint, however, the doctrine of uniqueness is not useful without an exhaustive case study of every person to be educated or counseled or understood. Yet we cannot safely assume that other people's minds work on the same principle as our own. All too often, others with whom we come in contact do not reason as we reason, or do not value the things we value, or are not interested in what interest us...seemingly chance variation in human behavior is not due to chance; it is in fact the logical result of a few basic, observable differences in mental functioning. (Myers and Myers, 1984:1)

These differences in mental functioning relate to the way individuals, when given a choice, prefer to perceive and to make judgments. Each function is described by a dichotomous spectrum on which each individual tends toward one end or the other when given the choice. Given situations may call for one type of perception over another, or one way of judging over another, and in these cases the behavior of individuals may move back and forth along the spectrum. However, given a choice to respond in either way, individuals will certainly exhibit behavior which consistently tends toward one end of the spectrum or the other.

This section will detail the perception and judgment spectrums, known as the cognitive functions, as well as two other dichotomous attitudes which are the building blocks of personality type theory as put forth by Myers and Myers in *Gifts Differing*.

Perception. As suggested by Jung, there are two effective though contrasting ways of perceiving. One is to perceive literally, relying largely on the five physical senses. This is referred to as *sensing* (S). Sensors prefer to focus on concrete information and practical facts. The other perceptive process is *intuition* (N). Those who perceive through intuition prefer to focus on the meanings of things and relationships between things. Ideas and possibilities are more interesting to intuitives than are information and facts. Sensors tend to be literal in their perceptions of the world while intuitives are more figurative (Kroeger and Thuesen, 1988:24-25).

As is true with all four personality functions and attitudes, children learn at an early age which method of perception they prefer. With that preference comes an increased use of and reliance upon the method which results in its strengthening and reinforcement. These preferences manifest themselves in harmless, but clearly opposite behavioral patterns. Sensors are sequential, actual, and specific. Intuitives are random, theoretical, and general. "Thus, by a natural sequence of events, the child who prefers sensing and the child who prefers intuition develop along divergent lines" (Myers and Myers, 1984:3).

Judgment. Conclusions will be drawn on what is perceived in two entirely contrasting ways. *Thinkers* (T) form their conclusions based on an objective, impersonal consideration of their perceptions. *Feelers* (F) are subjective and personal in their judgments. Thinkers tend to consider the cause and effect on events, while feelers consider how their judgments affect others. Simply, thinkers judge with their heads, and feelers with their hearts.

Those who prefer thinking tend to become better able to organize facts and ideas. Those who prefer feeling become more adept at interpersonal relationships. "Their basic preference for the personal or the impersonal approach to life results in distinguishing surface traits" (Myers and Myers, 1984:4). Thinkers tend to be firm-minded, just, and detached. Feelers are fair-hearted, humane, and involved (Kroeger and Thuesen, 1988:28).

Combinations of Perception and Judgment. Four distinct personality types result from the possible combinations of these divergent methods of perception and judgment. "Each of these combinations produces a different kind of personality, characterized by the interests, values, needs, habits of mind, and surface traits that naturally result from the combinations" (Myers and Myers, 1984:4).

Sensing plus thinking (ST): Practical and matter of fact; seek impersonal analysis of concrete facts.

Sensing plus feeling (SF): Sympathetic and friendly; seek to provide personal warmth to situations which can immediately benefit others.

Intuition plus feeling (NF): Personal warmth and commitment; enthusiastic and insightful; seek to be creative to meet human needs.

Intuition plus thinking (NT): Logical and ingenious; seek the theoretical at the subordination of the human element.

These four personality types are doubled to eight with the introduction of an additudinal preference, that of internal or external orientation.

Orientation. As stated earlier, orientation refers to one's relative interests in the *inner* and the *outer* worlds. The preference toward the inner world of ideas and concepts is called *introversion* (I). The preference toward the outer world of people and things is called *extraversion* (E). Introverts concentrate their perceptions and judgments on ideas, while extraverts focus them on the outside environment (Myers and Myers, 1984:7).

Behaviorally, extraverts tend to deal with most any situation by interacting with the people and things around them. They will likely initiate immediate discussions when presented with a problem. They are prone to give their opinion readily. They are likely to attempt to learn the application of something new by trying it out without referencing accompanying directions. Introverts tend to think about things first. They are likely to listen before they speak, taking great care in formulating opinions and giving them only when solicited. They are likely to spend time reading directions and considering their actions before attempting something new or unfamiliar.

It is especially important to note here that well-developed introverts and extraverts are capable of dealing effectively in their less preferred world. Extraverts are capable of being reflective with ideas and concepts, and introverts would find it difficult to avoid the outer world of people and things. They are happiest and most effective, however, when they are allowed to indulge their preferences (Myers and Myers, 1984:8).

The addition of the orientation attitude creates eight personality types which correspond to the eight psychological types described by Jung. The ST, SF, NF, and NT combinations described earlier can each be oriented as an external or an internal. Again, these eight personality types each have distinct behavioral and attitudinal patterns associated with the combination of their preferences. The addition of one more additudinal preference will again double the number of personality types to sixteen to extend personality type theory one step beyond Jung's psychological type theory.

Judgment Versus Perception as a Way of Life. While individuals all perceive some of the time and judge some of the time, no one can do both at the same time. Usually there is a more appropriate time to perceive and a more appropriate time to judge and a time when either attitude is appropriate. Individuals usually find one attitude more comfortable than the other, and at moments when either attitude is appropriate, most people will choose one over the other for dealing with the outer world (Myers and Myers, 1984:8-9). This last additudinal preference of *judgment* (J) or *perception* (P) refers to the attitude people prefer to assume toward the world around them when given the choice.

Judging people tend to order their lives and live them in a decisive, planned way. They seek to control the events which affect their lives. Perceptive people are spontaneous and flexible and seek to understand life and adapt to the events which control their lives.

It has been suggested that the JP distinction is the greatest source of interpersonal tension because it is a difficult preference to hide. Individuals strongly tend toward the behaviors common to these preferences in ways which are apt to cause friction with behaviors from the other side. "Judgers run Perceivers up the wall with their continued need for closure--to have an opinion, a plan, and a schedule for nearly everything. Perceivers, meanwhile, drive Judgers to drink with their ability to be spontaneous and easygoing about everything short of life-and-death issues, and sometimes even about

those" (Kroeger and Thuesen, 1988:40). There is overwhelming evidence, however, that even with this tendency toward interpersonal tension, the balance created between perceivers and judgers makes them compatible and attractive to one another.

MBTI Type Table. The resulting combination of sixteen personality types with distinct patterns of attitudes and observable behaviors are arranged on the MBTI Type Table. The Table allows types to be viewed in relation to one another. Appendix C contains a representation of the standard MBTI personality Type Table and a brief description of the personality types. The Table "arranges the types so that those in specific areas of the Table have certain preferences in common and hence share whatever qualities arise from those preferences" (Myers and Myers, 1984:27). Introverts are in the upper half of the table and extraverts in the lower half. Sensors are always to the left, and intuitives to the right. Feelers are always between thinkers on the ends, as are perceivers between judgers on the top and bottom. This arrangement creates quadrants of introverted sensors, introverted intuitives, extraverted sensors, and extraverted intuitives. The arrangement also means that movement from any box to any adjacent box requires changing only one preference. In this way, similar personality types are always right next to each other.

The Role of the Dominant Function. Myers contends that, as a ship needs a captain with undisputed authority to steer its course, one's personality needs a dominating process to bring order and unity to one's life (Myers and Myers, 1984:10). This dominating process will be one of the cognitive functions of either perception or judgment, and the individual shapes his or her life around giving that process the most freedom to pursue its goals. The other cognitive function will only be consulted when it does not interfere with the activity of the dominant function, or when the situation specifically calls for its use.

So, each individual will have as its dominant function either sensing, intuition, thinking, or feeling. Determining which function is dominant by observance of behavior is relatively obvious in extraverts, but is deceiving in introverts. In extraverts the dominant function is indicated by their attitudinal preference for either judging (J) or perceiving (P). This preference indicates the attitude they chose to assume toward the outside world. Because extraverts prefer to deal in the outside world, their dominant function is also external and is therefore indicated by their JP preference. Thus, the dominant function of the E--J will be the judging preference; either thinking or feeling. The dominant function of an E--P will be the perception preference; either sensing or intuition. This is the function on which they will most rely when dealing with their preferred external world of people and things.

Introverts prefer to deal with the internal world of ideas and concepts. Yet, they must constantly deal with the outer world of people and things or risk becoming antisocial. They differ from extraverts, however, in that the attitude preference they display to the outer world, either judgment or perception, is not their dominant function. This is because they save their dominant function for their preferred inner world of ideas and concepts. So, the dominant function for an I--J is associated with the perceptive function; either sensing or thinking. The judging preference takes place externally, while the perceptive preference happily operates internally. Similarly, the dominant function for the I--P is the judging preference; either thinking or feeling. While the perceptive preference handles the outside world, the judging preference reflects on ideas and concepts.

The Role of the Auxiliary Function. Balance requires use of the other cognitive function. "An extreme perceptive with no judgment is all sail and no rudder. An extreme judging type with no perception is all form and no content" (Myers and Myers, 1984:12). In both introverts and extraverts an auxiliary function is necessary to deal with the less preferred world; the external world for introverts and the internal world for extraverts.

Thus, the auxiliary function serves two purposes. First, it supplements the dominant function to provide balance between perception and judgment. Second, it keeps the introvert from being locked in the internal world by giving him or her a process with which to deal with the external world, and it keeps the extravert from being locked out of the internal world by giving he or she a process to operate effectively there. So the auxiliary function also provides balance between the internal and external worlds (Myers and Myers, 1984:13).

The auxiliary function for an E--J, then, is the preferred perceptive process; either sensing or intuition. The auxiliary function for an E--P is the preferred judging process; either thinking or feeling. On the other hand, the auxiliary function for the internal is indicated by their attitude preference. For an I--J, the auxiliary function is the judging preference. For the I--P, it is the perceptive preference.

Summary and Overview

This chapter reviewed relevant literature on ethics, business ethics, and ethical decision making models. It also examined Jung's theory of psychological type and how Katherine Briggs and Isabel Briggs Myers expanded on Jung's theory to develop the Myers-Briggs Type Indicator. In addition, the information presented provided the basis for why the researchers chose to combine ethical and psychological type theory as characterized by ethical sensitivity and the MBTI.

Chapter III will describe the methodology for determining the sample group, selecting the survey instruments, and analyzing the data for answering the research objective, problem statement, research question, and subsidiary research questions.

III. Methodology

This chapter outlines the specifics of the field study employed using mail surveys to collect the data. It provides the methodology used to select a simple random sampling of contract professionals from among members of the National Contract Management Association (NCMA). It gives the rationale behind the development of the survey instrument used to measure the dependent variable, ethical sensitivity. Finally, it introduces the statistics to be used in the data analysis necessary to answer the subsidiary and research questions.

Sample Group

The relationship between personality type and ethical sensitivity is examined among contract professionals in the field of government acquisitions. The NCMA is an association of contracting professionals involved primarily in government acquisitions. The organization contains individuals from both the government and private sectors and, of those in government, members of the military and civilian workforce. This organization was selected as a sampling frame because it allowed access to a convenient membership mailing list of individuals representing the population of contract professionals. A mailing list of approximately 23,900 names was provided as software by the NCMA.

A formula exists for computing the maximum sample size necessary to achieve a particular confidence/reliability level given a known finite population (Emory and Cooper, 1991:261). Using this formula, it was determined that a sample size of approximately 400 usable survey responses was needed to achieve a statistical confidence/reliability level of 95% +/- 5%. Based on the experiences of fellow researchers, a survey return rate of 30% was conservatively estimated. Given this rate, approximately 1350 surveys had to be sent for 400 to be returned. Anticipating the return of some incomplete or incorrectly answered surveys, two hundred was arbitrarily selected as an adequate number of extra

surveys to ensure the return of at least 400 usable responses. From the NCMA mailing list, an unrestricted simple random sampling of 1550 names was generated using a program written using Ashton-Tate DBase IV software. These names and addresses were stored in a database program with each file given a control number to be used for identification of the returned surveys.

In addition to questions relating to ethical sensitivity and personality type, the survey includes a section of demographic data. The *strata* in the sample frame includes age, gender, government or industry affiliation, job type, organizational level, length of experience, and exposure to formalized ethical policies and training. Although analysis does not specifically stratify the data along all these lines, it is useful that the sample represent these subgroups and that the data about the subgroups be collected. Sampling research suggests that an unrestricted, simple random sample offers the best opportunity to include all subgroups in the proper proportion to obtain the most valid representation of the sampling frame (Emory and Cooper, 1991:243-245). Conclusions drawn from the data collected from the sample are more readily generalized to the sample frame of NCMA members.

There is no data which indicates how well the NCMA represents the population of contract professionals. The degree to which it is a valid representation is the degree to which the conclusions extended from the sample to the sampling frame can be generalized to the population of contract professionals. If the research results in significant correlations between ethical sensitivity ar ersonality type in the sample, access to the sample's demographic data allows for additional research aimed at proving the validity of generalizing the conclusions to the sampling frame and the population.

Survey Instruments

In examining the relationship between personality type and ethical sensitivity, personality type is determined to be the independent variable. This variable was measured using the Myers-Briggs Type Indicator (MBTI) which is described in detail in Chapter II, (See Appendix D for the Myers-Briggs Type Indicator). The dependent variable is ethical sensitivity which is a new construct developed as part of this research. Measurement of this variable required formulation of a new survey instrument which could accurately gauge the degree to which an individual perceives that the determination of actions or decisions in a particular situation requires some ethical consideration, (See Appendix E for the Ethical Sensitivity Survey).

A review of information from the Center for Business Ethics at Bentley College and several defense contractor ethical handbooks were used in developing ten scenarios which represented likely situations that contracting professionals might encounter in the course of performing their jobs. This survey measures ethical sensitivity through the respondent's answer to the following question relating to each of ten separate scenarios: *"To what extent do you agree or disagree that ethical considerations are involved in making the following decision?"* The answers are arranged on a seven-point Likert as follows: 1) strongly disagree; 2) disagree; 3) slightly disagree; 4) neither agree or disagree; 5) slightly agree; 6) agree; 7) strongly agree. The ethical sensitivity variable, then, is continuous, with potential mean scores ranging from 1 to 7. The mean score of the answers to the ten scenarios is the respondent's ethical sensitivity score.

Survey validity was addressed in the instrument trial test. This trial test was administered to nineteen Air Force Institute of Technology graduate students in the Contract Management program of study. Their responses suggested the instrument was indeed measuring ethical sensitivity in the respondents. This was confirmed in a subsequent session where the respondents discussed their perceptions of what they were

being asked to provide in response to the scenarios. Their feedback provided the assurance that they gauged the degree to which ethical considerations were necessary in making a decision with regard to the scenario.

Analysis of the Data

Statistical analysis of patterns of ethical sensitivity with regard to different independent variables required the use of mean analysis of different populations (McClave and Benson, 1991:393-453). In all cases, a statistical confidence level of 95% +/- 5% was sought. Appendicies F through L contain the detailed statistical analysis necessary to answer the applicable subsidiary research questions.

Summary and Overview

This chapter showed the methodology used to select an unrestricted simple random sample of contract professionals from among members of the National Contract Management Association. It also explained the rationale behind the survey instrument used to measure ethical sensitivity. Lastly, it introduced the statistics to be used in the data analysis necessary to answer the subsidiary and research questions. Chapter IV provides a presentation and analysis of the data which is then used to answer the subsidiary and research questions in Chapter V.

IV. Analysis of Data

Introduction

The analysis of the data in this chapter is divided into three parts. The first part describes the sample of respondents through demographic data such as gender, age, education level, and ethnic background. It also describes their employment characteristics by job title, position level, years of experience, and small business affiliation. Next, the sample is described with regard to the respondents' perceptions of their organizations' emphasis on ethical behavior through formal written policies. The remainder and majority of the analysis is devoted to the subsidiary questions which examine and measure the relationships between ethical sensitivity and MBTI personality type.

Demographic Analysis

Of the 1550 surveys mailed out, 610 were returned for a response rate of 39.4%. Of those returned, 122 surveys were deemed unusable and rejected for being incorrectly or incompletely answered, for a net 31.5% response rate. The 488 usable surveys were examined and separated by government respondents (181) and private industry respondents (285). Twenty-two respondents characterized themselves as not being employed by government or private industry. The survey questionnaires did not give the respondents who answered *other* the opportunity to identify their employer further. As a result, these twenty-two responses were eliminated from further analysis, leaving a sample of 466 for study.

The demographics were grouped into two major areas: personal characteristics and job characteristics. The personal characteristics consist of gender, age, education level, and ethnic origin. The job characteristics are comprised of job title, position level, and years of experience.

Personal Characteristics. The gender characteristics of the government respondents differ significantly from that of the industry respondents. The 181 government respondents are almost equally divided with 48.62% males and 51.38% females, while industry respondents consist of 72.63% males and 27.37% females.

The ages of the survey respondents indicate approximately 71% of the government people are between 36 - 55 years old. On the industry side, approximately 60% of the people are between 36 -55 years old. The information also indicates that there is a slight disparity between government and industry people over 55 years of age; 8% versus 22%, respectively.

With respect to educational level, the data indicate that almost 75% of the government respondents have a bachelor's (29%) or master's (46%) degree. In comparison, nearly 84% of the industry respondents possess either a bachelor's (41%) or master's (43%) degree. In addition, the survey information indicates almost 88% of the government and 95% of the industry respondents are Caucasian. Table 1 is a summary of the specific information on gender, age, education level, and ethnic origin.

Job Characteristics. The first characteristic examined is job title. The categories include administrator/contracting officer, buyer/purchasing agent, clerical, cost/price/financial analyst, and other. As one might expect from a sample population of the National Contract Management Association, 65% of the government respondents are administrators/contracting officers as are 69% of the industry respondents. The position level mix between the two differs, however, with 57% of government respondents functioning in non-supervisory positions as compared to 31% for industry. With respect to supervisory positions, 31% of the government respondents hold these positions as compared with 51% for industry.

TABLE 1

GENDER, AGE, AND EDUCATION LEVELS OF GOVERNMENT AND PRIVATE INDUSTRY RESPONDENTS (N=466: 181 GOV; 285 IND)

	Government	Private Industry
Gender		
Male	48.62% (88)	72.63% (207)
Female	51.38% (93)	27.37% (78)
Age		
less 25 Years	1.66% (3)	1.40% (4)
26 - 35	19.34% (35)	17.89% (51)
36 - 45	44.75% (81)	31.93% (91)
46 -56	26.52% (48)	27.72% (79)
over 55 Years	7.73% (14)	21.06% (60)
Educational Level		
High School	11.60% (21)	5.96% (17)
Associate	11.05% (20)	7.02% (20)
Bachelor	28.73% (52)	40.70% (116)
Masters	46.41% (84)	43.16% (123)
Doctoral	2.21% (4)	3.16% (9)
Ethnic Origin		
Caucasian	87.85% (159)	94.74% (270)
Black	5.52% (10)	2.81% (8)
Hispanic	2.21% (4)	1.40% (4)
Oriental	2.21% (4)	1.05% (3)
Other	2.21% (4)	0.00% (0)

The job experience level information was stratified as follows: (1) less than five years, (2) six to ten years, (3) eleven to fifteen years, (4) sixteen to twenty-five years, and (5) over 25 years. The data indicates that 57% of government respondents have between six and fifteen years experience, while 60% of industry respondents have between eleven and twenty years experience. Table 2 is a summary of the job characteristics associated with job title, job position, and years of experience.

TABLE 2

JOB TITLE, POSITION LEVEL, AND YEARS OF EXPERIENCE OF GOVERNMENT AND PRIVATE INDUSTRY RESPONDENTS (N=466: 181 GOV; 285 IND)

	Government	Private Industry
Job Title		
Admin/Contracting Officer	65.19% (118)	69.12% (197)
Buyer/Purchasing Agent	14.37% (26)	17.89% (51)
Clerical	1.66% (3)	0.35% (14)
Cost/Price/Financial Analyst	5.52% (10)	9.12% (1)
Other	13.26% (24)	18.25% (47)
Position Level		
Non Supervisory	56.91% (103)	31.22% (89)
Manager/Supervisor	31.49% (57)	50.53% (144)
Executive	11.60% (21)	18.25% (52)
Years of Experience		
0 - 5 years	16.02% (29)	16.14% (46)
6 - 10	27.07% (49)	18.95% (54)
11 - 15	30.39% (55)	25.96% (74)
16 - 20	19.89% (36)	23.86% (68)
Over 25	6.63% (12)	15.09% (43)

Ethics Policy Questions

The objective of the research in this area is to determine the extent that companies have written policies on ethics and to obtain information on the individual's perceptions regarding different aspects related to those policies. With respect to ethical policies, 89% (161 of 181) of government respondents indicate their organizations have written policies. It should be noted that 18 of the 20 government respondents who indicate their organization do not have a written policy governing ethical behavior are from the federal government level. This is unusual since ethics policies, and programs which publicize and require training of those policies, have been mandated by statute at the federal government level. These respondents seem unaware of those policies. As for industry, 85% (242 of 285) indicate their organizations have written ethical policies. Of the 285 industry respondents, 20% (58) are considered small businesses. Only about half of the

small business respondents indicate their organizations have written policies. Table 3 provides a further breakout of the industry responses by organizational size.

TABLE 3

EXISTENCE OF WRITTEN ETHICS POLICIES FOR GOVERNMENT AND PRIVATE INDUSTRY (INCLUDING SMALL BUSINESS CONCERNS FOR PRIVATE INDUSTRY) (N=466: 181 GOV; 285 INDUSTRY)

	Government	Private Industry (large/small)	
Written Policy			
Yes	88.95% (161)	84.91% (242)	
No	11.05% (20)	15.09% (43)	
		Small Business	**Large Business**
Written Policy			
Yes		53.45% (31)	92.96% (211)
No		46.55% (27)	7.04% (16)

Those respondents who indicated that their organization did have a written ethical policy were asked to provide their responses to several questions on ethical policy and training. The questions were formatted using the following five point Likert scale: (1) strongly disagree, (2) disagree, (3) neither agree nor disagree, (4) agree, and (5) strongly agree. Table 4 summarizes the respondents answers to these questions.

The data indicate that over 86% of the government respondents and 93% of the industry respondents agree or strongly agree that their organization's ethical policies provide guidance on ethical behavior. In addition, over 77% of government respondents and 81% of the industry respondents agree or strongly agree that these written policies are distributed to employees.

With regard to providing new employee orientation on the organization's ethical policies, 66% of government and 72% of industry respondents agree or strongly agree that new employees are introduced to the organization's policies. On the other hand, 20% of

TABLE 4
PERCEPTIONS ABOUT THE ORGANIZATION'S ETHICAL TRAINING PROGRAM AMONG GOVERNMENT AND PRIVATE INDUSTRY RESPONDENTS
(N=466; 181 GOV; 285 IND)

	STRONGLY DISAGREE	DISAGREE	NEITHER AGREE NOR DISAGREE	AGREE	STRONGLY AGREE
QUESTION 10: My organization's written ethics policy provides guidance in relation to employee behavior towards customers/suppliers.					
GOV	3.11%	3.73%	7.45%	52.17%	33.54%
IND	3.73%	0.83%	2.49%	36.93%	56.02%
QUESTION 11: My organization's written policy is distributed to all employees.					
GOV	3.11%	11.18%	8.70%	41.61%	35.40%
IND	4.98%	10.37%	3.32%	28.22%	53.11%
QUESTION 12: All new employees are provided with an orientation to my organization's ethical policies.					
GOV	6.84%	13.66%	13.66%	40.37%	25.47%
IND	5.39%	10.79%	11.62%	31.54%	40.66%
QUESTION 13: My organization conducts employee training programs regarding the policies governing ethical behavior.					
GOV	5.59%	19.25%	9.32%	47.83%	18.01%
IND	6.23%	16.18%	10.79%	34.02%	32.78%
QUESTION 14: There is an on-going program of communication to employees spelling out and reemphasizing my organization's policies governing ethical behavior.					
GOV	8.07%	19.88%	19.25%	37.89%	14.91%
IND	6.23%	14.94%	11.20%	45.64%	21.99%
QUESTION 15: I agree with my organization's ethical policies.					
GOV	0.62%	6.21%	10.56%	59.01%	23.60%
IND	4.15%	0.83%	5.39%	41.08%	48.55%

the government people and 16% of the industry people disagree or strongly disagree that their organizations conduct new employee orientation on its ethical policies. On the subject of training, 66% of the government respondents and 67% of the industry respondents agree or strongly agree that ethical training is conducted. Conversely, 25% of government and 22% of industry respondents disagree or strongly disagree that ethics training is conducted. Respondents were also asked whether they perceived their

organizations as having a continuing program to emphasize its ethics polices. Fifty-three percent of the government as compared to 68% of industry agree or strongly agree their organizations have an on-going program. Twenty-eight percent of government respondents and 21% of industry respondents indicated they disagree or strongly disagree their organizations have an on-going program.

Finally, the respondents were asked to indicate to what extent they agreed with their organizations' policies. Almost 83% of the government respondents and 90% of industry respondents agree or strongly agree with their organizations' ethical policies.

It is clear from the literature that the government influenced emphasis on ethical awareness, written ethics policies, and initial and on-going ethics training in the private industry sector. Yet, it is interesting to note that these data report a consistent slightly greater percentage of industry respondents are aware of these policies and programs in their own organizations than are government respondents. This may be due to the more recent nature of industry's ethics programs. Because of the emphasis by government, industry respondents are more likely to have had training in the more recent past that government respondents. Also, new programs are likely to be initiated with greater publicity, making their existence more recent in the minds of industry employees. Another possible contributor may be that the maturity of government ethics programs has led to some complacency in recurring training which has made the existence of the programs less current in the minds of the government respondents. Since the survey is being conducted by a government agency (The Air Force Institute of Technology), it may also be that industry employees tend to answer in a manner they believe pleasing to the survey administrators, contributing to the slight but consistent difference in the answers.

Analysis of Ethical Sensitivity and Personality Type

The specific question posed by this research is restated as follows:

> What is the relationship between ethical sensitivity and personality types, as measured by the Myers-Briggs Type Indicator, among contract professionals?

The data collected indicate that there are statistically significant correlations between ethical sensitivity and certain aspects of personality type. This is clearly demonstrated through discussion of the subsidiary questions outlined in Chapter I. The remainder of this chapter is devoted to those discussions.

> **Subsidiary Question 1.** What are the characteristics of ethical sensitivity among survey respondents?

The respondents were asked to determine the degree of ethical consideration required to resolve each of ten distinct acquisition related scenarios. The possible answers ranged in whole numbers from one to seven, with seven being the greatest degree of ethical consideration. The average score on each scenario for all 466 respondents, and the standard deviation and median scores, are detailed in Table 5, as is a brief summary of each scenario. Appendix E contains the full scenarios in the Ethical Sensitivity Survey.

The mean score is the average derived from all 466 responses. These scores indicate that the respondents as a group judged some scenarios to require a greater degree of ethical consideration than others. The standard deviation is a measure of the variability of the answers among respondents. A comparison of the mean score of each scenario with the mean scores of each of the other nine scenarios reveals a statistically significant difference in the ethical consideration required of the two compared scenarios in 82.2% of the cases (37 of the 45 comparisons). Table 6 summarizes the statistical significance of each of the comparisons. Three asterisks represents a significance level of 99.9%; two asterisks represents 99%; one asterisk represents 95%. Comparisons with a level less than 95% are considered to not be statistically significant.

TABLE 5

ETHICAL SENSITIVITY MEAN, STANDARD DEVIATION, AND MEDIAN VALUES OF THE SURVEY SCENARIOS (SCENARIOS IDENTIFIED BY AN ABBREVIATED DESCRIPTION) (N=466)

	Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25
MEAN	5.8712	4.8176	5.4185	6.1631	5.4399	5.3305	5.6803	5.2039	3.1931	5.7296
STDEV	1.6541	1.9174	1.8845	1.5110	1.6466	1.6894	1.7969	1.8042	1.8320	1.6037
MEDIAN	6	5	6	7	6	6	6	6	3	6

Q16	Use of information concerning a competitor's bid on an on-going solicitation.
Q17	Use of government resources for personal projects (pursuit of an advanced degree).
Q18	Reduction of product test-time in order to meet deliveries.
Q19	Informing the company of a pricing error in the government's favor, discovered by the government, on a negotiation summary document.
Q20	Program manager briefs information, prepared by a design engineer, with which he is unfamiliar. Standing by the information in a manner suggesting his knowledge and agreement.
Q21	Volunteering additional and damaging information at a program briefing that has been purposefully omitted by the briefing office, your supervisor.
Q22	Prime contractor discovers subcontractor may have a new process which can save the government 15% on a current contract. Disclosure of the new process and savings to the government.
Q23	Contractor review of information accidentally received from a government source concerning an up-coming solicitation.
Q24	Attempting to hire a knowledgeable and unhappy employee away from a competitor to improve your competitive position with regard to the competitor.
Q25	Elevating information concerning design flaws in completed products above the VP when the VP has taken no action on the information.

In 8 of the 45 comparisons there are no statistically significant differences in the degree of ethical consideration between the two scenarios. Observing the mean scores in Table 5 indicates that there is a difference in the means in those cases, however z-score comparisons do not indicate a statistical significance level of at least 95%. Appendix F gives the z-scores for these comparisons.

Respondents reported the greatest degree of ethical sensitivity on Question 19. Not only was the mean score the highest, the standard deviation was the lowest, showing the smallest amount of variability among the scenarios, and the mean score was 7, indicating that at least half the respondents reported the highest degree of ethical sensitivity for this decision. This scenario addressed a government employee's decision to notify the contractor of an arithmetic error in the negotiation summary which favored the government. In fact, government regulations require this type of notification. It appears

TABLE 6

STATISTICAL SIGNIFICANCE OF COMPARISONS OF ETHICAL SENSITIVITY BETWEEN SCENARIOS (SCENARIOS IDENTIFIED BY AN ABBREVIATED DESCRIPTION) (N=466)

	Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25
Q16	***	***	**	***	***	---	***	***	---
Q17		***	***	***	***	***	**	***	***
Q18			***	---	---	*	---	***	**
Q19				***	***	***	***	***	***
Q20					---	*	*	***	**
Q21						**	---	***	***
Q22							***	***	---
Q23								***	***
Q24									***

*	p<.050
**	p<.010
***	p<.001

Q16	Use of information concerning a competitor's bid on an on-going solicitation.
Q17	Use of government resources for personal projects (pursuit of an advanced degree).
Q18	Reduction of product test-time in order to meet deliveries.
Q19	Informing the company of a pricing error in the government's favor, discovered by the government, on a negotiation summary document.
Q20	Program manager briefs information, prepared by a design engineer, with which he is unfamiliar. Standing by the information in a manner suggesting his knowledge and agreement.
Q21	Volunteering additional and damaging information at a program briefing that has been purposefully omitted by the briefing office, your supervisor.
Q22	Prime contractor discovers subcontractor may have a new process which can save the government 15% on a current contract. Disclosure of the new process and savings to the government.
Q23	Contractor review of information accidentally received from a government source concerning an up-coming solicitation.
Q24	Attempting to hire a knowledgeable and unhappy employee away from a competitor to improve your competitive position with regard to the competitor.
Q25	Elevating information concerning design flaws in completed products above the VP when the VP has taken no action on the information.

from the responses that there is a high degree of awareness of the requirement and its association with ethical behavior.

The lowest degree of ethical sensitivity registered with Question 24. This scenario involves two friends who work for competing companies. When one learns the other is unhappy with the recognition he's received for his work, he considers telling his personnel people about it and suggesting they attempt to hire the other away from the competitor. Having a person with knowledge of a competitor would improve his company's competitive standing on future solicitations. The sample did not see this decision as being

strongly guided by ethical considerations. This situation is not addressed by statute or regulation, nor is it the subject of ethics policy. Consistent with this, respondents rated it low on the ethical sensitivity scale.

The data show statistically significant differences between the average ethical sensitivities of government and private industry employees. This difference appears to be driven by their attitudes regarding four of the scenarios (questions 17, 19, 21, and 23). The average ethical sensitivity scores of the government and private industry for each of the questions and in total are detailed in Table 7. Actual Z-score calculations can be found in Appendix G.

Government employees in the sample report higher ethically sensitivity responses, overall. The literature substantiates that ethical awareness and training originated and were driven by the public sector. It is reasonable to believe that their longer emphasis on the subject and the maturity of their programs would combine to make them more sensitive to the ethical considerations involved in given situations. Questions 17, 21, and 23 are the more influential scenarios accounting for the government's higher ethical sensitivity responses. Only in Question 19 does the private industry sample report a higher degree of ethical sensitivity.

Question 17 deals with the use of the organization's resources for personal activities (college projects). The data show that government contracting professionals are more inclined to believe that this use of the taxpayer's property is a question of ethics than private industry employees believe a similar use of the company's resources is a question of ethics. This is consistent with the government's emphasis on the principle of not using public funds for private gain.

In Question 21, a government supervisor briefs incomplete information at a program review. The cost analyst who prepared the data is present and knows that there is additional information not briefed by the supervisor which indicates that the program is

TABLE 7

COMPARISON OF THE MEAN, STANDARD DEVIATION, AND MEDIAN VALUES OF GOVERNMENT AND PRIVATE INDUSTRY CONTRACTING PROFESSIONALS ON TEN SCENARIOS INVOLVING ETHICAL SENSITIVITY (SCENARIOS IDENTIFIED BY AN ABBREVIATED DESCRIPTION) (N=466: 181 GOV; 285 IND)

	Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	TOTAL
GOV											
MEAN	5.8619	5.1271	5.5470	5.9337	5.4696	5.5525	5.8453	5.4641	3.3425	5.7238	5.3867
STDEV	1.7441	1.7608	1.7043	1.6452	1.6916	1.5032	1.5629	1.5829	1.7993	1.6024	0.8656
MED	7	6	6	6	6	6	6	6	3	6	5.5
IND											
MEAN	5.8772	4.6211	5.3368	6.3088	5.4211	5.1895	5.5754	5.0386	3.0982	5.7333	5.2200
STDEV	1.5974	1.9886	1.9891	1.4027	1.6202	1.7859	1.9261	1.9160	1.8493	1.6073	0.8734
MED	6	5	6	7	6	6	6	6	2	6	5.2
ST SIG	---	**	---	*	---	*	---	**	---	---	*

*	p<.050
**	p<.010
***	p<.001

NOTE: ST SIG is the statistical significance of the comparison of the ethical sensitivity mean values between government and industry for each scenario.

Q16	Use of information concerning a competitor's bid on an on-going solicitation.
Q17	Use of government resources for personal projects (pursuit of an advanced degree).
Q18	Reduction of product test-time in order to meet deliveries.
Q19	Informing the company of a pricing error in the government's favor, discovered by the government, on a negotiation summary document.
Q20	Program manager briefs information, prepared by a design engineer, with which he is unfamiliar. Standing by the information in a manner suggesting his knowledge and agreement.
Q21	Volunteering additional and damaging information at a program briefing that has been purposefully omitted by the briefing office, your supervisor.
Q22	Prime contractor discovers subcontractor may have a new process which can save the government 15% on a current contract. Disclosure of the new process and savings to the government.
Q23	Contractor review of information accidentally received from a government source concerning an up-coming solicitation.
Q24	Attempting to hire a knowledgeable and unhappy employee away from a competitor to improve your competitive position with regard to the competitor.
Q25	Elevating information concerning design flaws in completed products above the VP when the VP has taken no action on the information.

worse off than implied by the supervisor's briefing. The question concerns the degree of ethical consideration involved in the cost analyst's decision on whether or not to volunteer the additional information. Government employees reported a higher propensity to believe the decision involves ethical considerations than were private industry employees. Possible explanations for this difference include the following. Since the scenario was framed in a government environment and involves a government employee, it might

contain a bias by being more attractive or interesting to the government respondents and less so to industry respondents. Another possibility is that industry has a greater propensity to keep its problems internal while trying to correct them. Since the contractor would be the victim of the revelation of the additional information, private industry respondents might have a bias toward judging the issue in terms other than ethical, making it easier to develop a rationale for keeping the information internal. The latter explanation can also be used to account for the other two scenarios where the level of ethical sensitivity was significantly different.

In Question 23, a government program manager mistakenly provides information to a contractor employee for review by his engineering team which would unfairly aide the contractor on an upcoming solicitation. The question of ethical consideration concerns whether the contractor employee should allow his team to review the document as requested, or refuse to review the document and return it to the government program manager. Government employees responded with a higher degree of ethical sensitivity, again indicating that when the decision consistent with ethical behavior (in this case, returning the document) is to the disadvantage of one of the parties (the contractor), that party is less likely to view the decision in terms of ethics.

Question 19 is the only one in which the private industry respondents had a higher level of ethical sensitivity. In this scenario, a government contracting officer, while reviewing a final negotiation summary document provided by the contractor, discovers an error in favor of the government. The question concerns the ethical consideration involved in the contracting officer's decision of whether or not to notify the contractor of the error. Here, private industry respondents were more likely to view the decision as a question of ethics than were government respondents. This is consistent with Jones' notion of *moral proximity*, described in Chapter II, which states that one is likely have a higher level of morally intensity over issues that affect them. In this scenario, the

contractor can be the victim or beneficiary of the government's action and, therefore, is sensitive to the ethics involved in that decision.

The discovery of a significant difference between the ethical sensitivities of government and private industry will be used in the analysis of the relationship between ethical sensitivity and personality type. The further stratification of the data by government and industry may uncover statistically significant relationships that would otherwise be masked when the relationships are examined without government and industry separation.

> **Subsidiary Question 2.** Is there a statistically significant difference in the distribution of personality type, as characterized by the Myers-Briggs Type Indicator, among survey respondents and the general population?

The first task in answering this question is to determine which estimate of personality type in the general population with which to compare the observed data. For the purposes of this research, the general population is limited to the population of the United States. A 1985 article in *The Journal of Psychological Type* offers three different data banks of MBTI respondents which are drawn from some cross-section of the general US population, (McCaulley and others, 1985:3-9). Each data bank, however, contains its own particular bias.

The first data bank is a sample of 4933 11th and 12th grade high school students surveyed by Isabel Myers in 1957. It tends to be biased in favor of introverts and intuitives as research shows that extroverts and sensors are more likely to drop out of high school (McCaulley and others, 1985:3).

Another MBTI data bank is maintained at the Center for the Application of Psychological Type (CAPT). This bank has over 23,000 records taken using Myers' Form F type indicator, and almost 16,000 others using the Form G type indicator. The respondents in these groups were significantly weighted toward persons with some

amount of higher education. This bias tends to create a high percentage of introverts and intuitives who are more likely to go on to college and beyond (McCaulley and others, 1985:3).

The third data bank described in the McCaulley article comes from a Values and Lifestyles (VAL) program conducted by SRI International of Menlo Park, California. This bank contains 1105 records taken from a sampling of households with telephones from 300 counties across the United States. Because it relies on households with telephones, and because one of the intents of the data is to use it for marketing surveys, this group tends to be biased toward the affluent (McCaulley and others, 1985:5).

Since the intent of the analysis of this subsidiary question is to test the hypothesis that the sampling of contract professionals used in this research is unique, it is best to test it against a sample which has the greatest possibility of being similar. Of the three samples outlined in the McCaulley article, the CAPT data bank is chosen because of its bias toward those respondents with some amount of higher education. As described earlier, the sampling of contract professionals used in this research is heavily weighted toward college graduates. Also, the Form G sample is used since it is a more recent restandardization by Isabel Myers of the type scales. The MBTI distribution for both the CAPT data bank and the sampling of contract professionals is contained in Table 8. It shows that the sampling of contract professionals contains more sensing-thinking (ST) types than the CAPT data bank, particularly introverted sensing-thinking types (IST) among women.

A Chi-Squared Test is used to determine if there is a statistically significant difference between the samples. The test can be conducted two different ways with regard to this data. The first is to test by gender category across the sixteen personality types. The second is to test by MBTI category across male and female. The summary data for both tests is contained in Appendix H.

TABLE 8

COMPARISON OF THE MBTI DISTRIBUTIONS OF THE SAMPLE OF CONTRACT PROFESSIONALS AND THE CENTER FOR THE APPLICATION OF PSYCHOLOGICAL TYPE (CAPT) DATA BANK BY PERCENTAGE FOR MALES AND FEMALES (CAPT DATA BANK: N=32,671: 15,791 MALES; 16,880 FEMALES; CONTRACT PROFESSIONALS: N=488: 310 MALES; 178 FEMALES)

ISTJ			ISFJ			INFJ			INTJ		
	Sample	CAPT		Sample	CAPT		Sample	CAPT		Sample	CAPT
Male	27.1%	15.4%	Male	0.7%	4.4%	Male	0.0%	2.6%	Male	5.5%	7.3%
Female	19.1%	9.8%	Female	0.0%	10.3%	Female	1.1%	4.8%	Female	5.6%	4.0%
ISTP			**ISFP**			**INFP**			**INTP**		
	Sample	CAPT		Sample	CAPT		Sample	CAPT		Sample	CAPT
Male	19.4%	6.1%	Male	0.7%	3.0%	Male	0.0%	4.8%	Male	6.1%	7.0%
Female	10.7%	2.7%	Female	0.6%	4.3%	Female	2.3%	6.3%	Female	10.7%	3.2%
ESTP			**ESFP**			**ENFP**			**ENTP**		
	Sample	CAPT		Sample	CAPT		Sample	CAPT		Sample	CAPT
Male	11.6%	5.9%	Male	1.0%	3.1%	Male	0.0%	5.4%	Male	5.2%	6.9%
Female	11.2%	2.8%	Female	2.3%	5.7%	Female	6.2%	9.8%	Female	9.6%	4.1%
ESTJ			**ESFJ**			**ENFJ**			**ENTJ**		
	Sample	CAPT		Sample	CAPT		Sample	CAPT		Sample	CAPT
Male	19.0%	14.0%	Male	2.6%	4.4%	Male	0.0%	2.7%	Male	1.3%	6.9%
Female	15.2%	10.1%	Female	1.7%	10.7%	Female	1.1%	6.4%	Female	2.8%	5.2%

The following hypothesis is tested to determine if the samples are distinct:

H_0: There is no statistically significant difference in the distribution of personality type, as characterized by the Myers-Briggs Type Indicator, among survey respondents and the general population.

To reject this hypothesis with a confidence level of 99%, the sum of the Chi-Squared values must be greater than 30.58 for the test by gender across all the personality types, and greater than 6.64 for the test of each personality type by male and female (Emory and Cooper, 1991:738). For both males and females, the Chi-Squared values across the sixteen personality types are far greater than 30.58. In fact, both values exceed those necessary for a significance level of 99.9% (37.50). Therefore, the stated hypothesis is rejected and it can be concluded with 99.9% certainty that the samples are different with regard to their distribution of personality type.

The analysis in Appendix H also shows that the distribution of males and females in each personality type for the sample of contracting professionals is statistically different from that of the CAPT sample in all types but INTJs. In 13 of the remaining 15 types, the significance level is at least 99.9% (Chi-Squared > 10.83).

Having determined the uniqueness of the sample, it is now appropriate to describe the sample in terms of MBTI type frequency by government and private industry respondents. This data is detailed in Table 9.

TABLE 9

DISTRIBUTION OF MBTI TYPES FOR GOVERNMENT, PRIVATE INDUSTRY, AND OTHER CATEGORIES (N=488: 181 GOV; 285 IND; 22 OTH)

ISTJ			ISFJ			INFJ			INTJ		
GOV:	58	32.04%	GOV:	1	.55%	GOV:	2	1.11%	GOV:	6	3.32%
IND:	57	20.00%	IND:	1	.35%	IND:	0	0.00%	IND:	19	6.67%
OTH:	3	13.63%	OTH:	0	0.00%	OTH:	0	0.00%	OTH:	2	9.09%
ISTP			**ISFP**			**INFP**			**INTP**		
GOV:	26	14.36%	GOV:	3	1.66%	GOV:	2	1.11%	GOV:	17	9.39%
IND:	49	17.19%	IND:	0	0.00%	IND:	2	.70%	IND:	19	6.67%
OTH:	4	18.18%	OTH:	0	0.00%	OTH:	0	0.00%	OTH:	2	9.09%
ESTP			**ESFP**			**ENFP**			**ENTP**		
GOV:	18	9.94%	GOV:	3	1.66%	GOV:	2	1.11%	GOV:	10	5.52%
IND:	38	13.33%	IND:	4	1.40%	IND:	9	3.16%	IND:	18	6.32%
OTH:	0	0.00%	OTH:	0	0.00%	OTH:	0	0.00%	OTH:	5	22.73%
ESTJ			**ESFJ**			**ENFJ**			**ENTJ**		
GOV:	27	14.92%	GOV:	4	2.21%	GOV:	1	.55%	GOV:	1	.55%
IND:	57	20.00%	IND:	5	1.75%	IND:	0	0.00%	IND:	7	2.46%
OTH:	2	9.09%	OTH:	2	9.09%	OTH:	1	4.55%	OTH:	1	4.55%

Twenty-two of the 488 respondents identified themselves as working for neither the government nor private industry. The questionnaire did not give them the opportunity to specifically identify their employer. For the subsequent analysis of ethical sensitivity and personality type, these 22 records are omitted, leaving a working sample of 466; 181 government and 285 industry respondents.

Subsidiary Question 3 (*Pivotal*). Is there a statistically significant relationship between ethical sensitivity and the individual components of personality type, as characterized by the Myers-Briggs Type Indicator, among survey respondents?

The data were first stratified by the eight Myers-Briggs preferences and by government and private industry. A summary of this distribution is contained in Table 10.

TABLE 10

DISTRIBUTION OF SURVEY RESPONDENTS BY THE EIGHT MYERS-BRIGGS PERSONALITY PREFERENCES FOR GOVERNMENT AND PRIVATE INDUSTRY (N=466: 181 GOV; 285 INDUSTRY)

	EXTRA-VERSION	INTRO-VERSION	SENSING	INTUI-TION	THINKING	FEELING	JUDGE-MENT	PERCEP-TION
GOV #	66	115	140	41	163	18	100	81
PCT	36.46%	63.54%	77.35%	22.65%	90.06%	9.94%	55.25%	44.75%
IND #	138	147	211	74	265	20	146	139
PCT	48.42%	51.58%	74.04%	25.96%	92.98%	7.02%	51.23%	48.77%

Comparison of the ethical sensitivities of the preferences on each scale and between the government and industry is conducted again using comparison of the ethical sensitivity mean scores from the ten scenarios, separately and in aggregate. The following hypothesis is to be tested.

> H_0: There is no statistically significant relationship between ethical sensitivity and the individual components of personality type, as characterized by the Myers-Briggs Type Indicator, among survey respondents.

A complete table of the data for this analysis is contained in Appendix I. Table 11 is a summary of the comparisons of the means for all ten scenarios.

Examination of the means without statistical analysis shows differences between the preferences on each of the scales and between government and industry respondents. Statistically significant differences appear in four comparisons. Among government respondents, intuitives show a higher degree of ethical sensitivity than sensors. This is not

TABLE 11

COMPARISON OF MEAN ETHICAL SENSITIVITY SCORES ACROSS THE TEN SCENARIOS FOR THE EIGHT MBTI PREFERENCES FOR GOVERNMENT AND INDUSTRY RESPONDENTS (N=466: 181 GOV; 285 IND)

	GOV MEAN	IND MEAN	Significance		GOV MEAN	IND MEAN	Significance
Extraversion	5.3924	5.2239	—	Sensing	5.3114	5.1848	—
Introversion	5.3835	5.2163	—	Intuition	5.6439	5.3202	*
Significance	—	—		Significance	*	—	
	GOV MEAN	IND MEAN	Significance		GOV MEAN	IND MEAN	Significance
Thinking	5.4196	5.2015	**	Judgement	5.3140	5.1801	—
Feeling	5.0889	5.4650	—	Perception	5.4765	5.2619	*
Significance	—	—		Significance	—	—	
*	$p < .050$						
**	$p < .010$						
***	$p < .001$						

present among private industry respondents, but it is strong enough in the government segment to carry over in the comparison of government and industry intuitives. With the determination that a statistically significant difference in the ethical sensitivity between sensors and intuitives among government respondents exists, the above hypothesis statement is rejected. It can be stated with 95% certainty that there is a statistically significant relationship between ethical sensitivity and the intuitive component of personality type in this sample.

The correlation between intuition and ethical sensitivity reported by this data seems sensible with respect to the characteristics of intuitive types. Intuitives are prone to look beyond the objective description of a situation toward the meanings of what they perceive. They seek "the broadest view of what is possible and insightful" given a particular situation (Myers and McCaulley, 1985:13). While reading the ten scenarios posed in the survey, intuitives are instinctively assigning meaning to the events as they unfold in the scenario. They consider the possible consequences of varying decisions and

actions, and their insight creates a notion about the ethical considerations that should be involved in formulating those decisions and actions. Their perceptions about what requires ethical consideration are formed from the notions they get when reading the scenario, not an objective comparison of the scenario's events and what they know of ethics policy. Their preoccupation with possibilities makes them apt to see the potential ethical consequences in most situations which, therefore, may create a higher degree of ethical sensitivity.

Although some variations of the levels of ethical sensitivity exist among the other MBTI scales, there are no statistically significant differences. Extraverts report a slightly higher ethical sensitivity than introverts, and perceiving types report higher sensitivities than judging types. The differences between these preferences, however, are so slight among both government and industry respondents, they do not suggest meaningful deductions beyond merely mentioning them.

The data report two other interesting items. First, there appears to be a contradiction on the thinking-feeling scale. While government thinkers report a higher ethical sensitivity mean than government feelers, the reverse is true among industry respondents. There, feelers report higher sensitivities than thinkers. Government thinkers, however, report higher than industry thinkers at a significance level of 99%. Although industry feelers report higher sensitivities than government feelers, the difference is not statistically significant. The apparent contradiction creates ambiguity about the relationship between thinking and feeling types and ethical sensitivity. Neither type among either government or industry respondents show a statistically significant relationship to ethical sensitivity. The statistical significance of the higher reported sensitivity of government thinkers over industry thinkers is not sufficient evidence to show a link between thinking and ethical sensitivity. Nor should a possible link between feeling and

ethical sensitivity be ruled out as long as there are possible influences at work in this sample which create this ambiguity.

Based upon the descriptions of preferences found in the relevant literature, there are arguments to support a significant relationship between ethical sensitivity and both thinking and feeling types. On the one hand, thinkers are more likely to do an objective, impersonal analysis of each situation (Myers and McCaulley, 1985:12). They are likely to compare the analysis to the applicable ethics policy to see if the situation under consideration is analogous to the policy. The degree of ethical consideration mandated by the situation would be dictated by the accuracy of the match. Feelers, on the other hand, are more likely to rely on their understanding of personal and group values (Myers and McCaulley, 1985:12). They will base their judgment about the ethical consideration called for by the scenario on their feelings about those values and the people involved. Intuitively, both positions are logical. Yet, the statistical significance of the data in this research support neither.

The ambiguous results of this analysis, and the fact that there is statistical significance associated with one of the indications (government thinkers reporting more ethical sensitivity than industry thinkers), suggest there may be statistically significant relationships between one of the preferences on the thinking-feeling scale and ethical sensitivity. The apparent contradiction between government and industry respondents, however, make meaningful deductions difficult. Analysis of larger and more varied samples may be necessary to gain insight into these relationships.

The other interesting item resulting from the data is that government perceivers report significantly higher ethical sensitivity responses than industry perceivers. There is a 95% level of significance to this finding. This may be related to the finding that government intuitives reflect significantly higher ethical sensitivity scores than industry intuitives. Recall that the Myers-Briggs Type Indicator relates the attitudinal preferences

of the judging-perceiving scale to the cognitive scales of sensing-intuition and thinking-feeling. Since intuition is a perceptive cognitive function, it is reasonable to see the higher reported sensitivity of government intuitives compared to industry intuitives reflected in the comparison of government and industry perceivers.

It was established by the literature reviewed in Chapter II that government ethical awareness and training programs have been around longer than industry programs and are more mature. It has also been discussed that intuitives favor the type of symbolic, subjective awareness that situations involving ethics often require (Myers and McCaulley, 1985:13). Government intuitives, then, may have a deeper foundation established in ethical awareness which is reflected in their ethical sensitivity responses. That government perceivers reflect a similarly higher sensitivity than industry perceivers is consistent with the link between the intuition and perception preferences.

Table 12 contains information on only those scenarios which showed a statistically significant difference in ethical sensitivity between MBTI preferences or between government and industry responses. Z-score comparisons are contained in Appendix J. As shown earlier, government intuitives reported a significantly higher ethical sensitivity than government sensors when compared in the ten scenarios. It appears from Table 12 that this was driven by the high ethical sensitivity responses of government intuitives on Questions 18, 19, and 21. Questions 19 and 21 describe scenarios where a government employee is faced with a decision. The first is a scenario where the employee detects an arithmetic error in the government's favor. As discussed earlier, regulations dictate that the employee notify the contractor of the error. The latter scenario involves volunteering unfavorable information about a program when the information has been purposely omitted from a briefing by the employees supervisor. Ethics training within the government makes it clear that all relevant information must be disclosed during program reviews. Thus, both scenarios address questions which are familiar to government

TABLE 12

COMPARISON OF THE MEAN ETHICAL SENSITIVITY SCORES OF THE MBTI PREFERENCES BY GOVERNMENT AND INDUSTRY RESPONDENTS ON SCENARIOS EXHIBITING STATISTICAL SIGNIFICANCE (SCENARIOS IDENTIFIED BY AN ABBREVIATED DESCRIPTION) (N=466: 181 GOV; 285 IND)

Preference or Segment with Greater Ethical Sensitivity Mean Listed First	Q17	Q18	Q19	Q21	Q22	Q23	Q24
Intuition vs. Sensing							
Government Respondents	—	*	**	**	—	—	—
Feelers vs. Thinkers							
Industry Respondents	—	—	—	—	—	—	*
Extraversion							
Government vs. Industry Respondents	*	—	—	*	—	—	—
Introversion							
Industry vs. Government Respondents	—	—	*	—	—	—	—
Sensing							
Government vs. Industry Respondents	*	—	—	—	—	—	—
Industry vs. Government Respondents	—	—	**	—	—	—	—
Intuition							
Government vs. Industry Respondents	—	—	—	**	—	**	—
Thinking							
Government vs. Industry Respondents	**	—	—	*	—	**	—
Industry vs. Government Respondents	—	—	*	—	—	—	—
Feeling							
Industry vs. Government Respondents	—	—	*	—	—	—	—
Judging							
Government vs. Industry Respondents	—	—	—	—	**	—	—
Industry vs. Government Respondents	—	—	*	—	—	—	—
Perceiving							
Government vs. Industry Respondents	*	—	—	*	—	***	—

* p<.050
** p<.010
*** p< .001

Q17 Use of government resources for personal projects (pursuit of an advanced degree).

Q18 Reduction of product test-time in order to meet deliveries.

Q19 Informing the company of a pricing error in the government's favor, discovered by the government, on a negotiation summary document.

Q21 Volunteering additional and damaging information at a program briefing that has been purposefully omitted by the briefing office, your supervisor.

Q22 Prime contractor discovers subcontractor may have a new process which can save the government 15% on a current contract. Disclosure of the new process and savings to the government.

Q23 Contractor review of information accidentally received from a government source concerning an up-coming solicitation.

Q24 Attempting to hire a knowledgeable and unhappy employee away from a competitor to improve your competitive position with regard to the competitor.

employees and where they are trained and are aware of the ethical implications of their decisions. Their higher ethical sensitivity can be logically related to this familiarity.

Although Question 18 involves a contractor employee, it also addresses a situation of which government employees are trained to be aware. In this scenario, the contractor's quality assurance inspector is directed by his supervisor to reduce required product testing in order to meet delivery schedules. Government sensitivity to the quality of the products it purchases may create the same familiarity which drive this significantly higher ethical sensitivity.

The other statistically significant difference between preferences occurred for the scenario in Question 24. Industry feelers reported a significantly higher ethical sensitivity than industry thinkers. This difference was not strong enough, however, to create a statistically significant difference in the aggregate ethical sensitivity scores over all ten scenarios. The scenario involved the ethical sensitivity to one contractor attempting to hire an unhappy employee away from a competing contractor in order to use his knowledge of the other company to improve their competitive position. Feeling types within industry viewed this with a significantly higher degree of ethical sensitivity than thinking types. This difference may be present because the scenario directly involves people as opposed to issues and things. Feelers are defined by their propensity to judge situations based on the effects on the people involved. Feelers may be more sensitive to the ethics involved in this scenario because it directly affects people and, therefore, feel the situation requires a higher degree of ethical consideration.

With the exception of Question 19, in each of the other scenarios where there were significant findings, the government respondents reported higher degrees of ethical sensitivity than industry respondents. This is consistent with what was found when the data were examined in the aggregate over all ten scenarios. Only in Question 19 did industry respondents of any preference report a higher ethical sensitivity than government

respondents. It should be remembered that, as discussed earlier, this scenario involves an arithmetic error in favor of the government. Industry respondents reported a higher ethical sensitivity for this scenario in five of the eight preferences.

> **Subsidiary Question 3A *(Pivotal).*** Is there a statistically significant relationship between ethical sensitivity and specific combinations of personality components, as characterized by the Myers-Briggs Type Indicator, among survey respondents?

The specific combinations of personality components analyzed are the MBTI cognitive sets: ST, SF, NT, and NF. In order to determine if there is a significant relationship between any of these sets and ethical sensitivity, the following hypothesis will be tested:

> H_0: There is no statistically significant relationship between ethical sensitivity and specific combinations of personality components, as characterized by the Myers-Briggs Type Indicator, among survey respondents.

This hypothesis is tested using a comparison of the means of each cognitive set between government and industry and of each mean with the other three within government and industry. Table 13 summarizes these findings. Appendix K contains the applicable Z-scores for the analysis.

TABLE 13

COMPARISON OF THE ETHICAL SENSITIVITY MEAN SCORES OF THE MYERS-BRIGGS TYPE INDICATOR COGNITIVE SETS FOR GOVERNMENT AND INDUSTRY RESPONDENTS (N=466: 181 GOV; 285 IND)

	ST MEAN	SF MEAN	NT MEAN	NF MEAN
GOV	5.3194	5.2182	5.8000	4.8857
IND	5.1642	5.6000	5.3111	5.3727
SIG	---	---	***	---

	ST (n=129)	SF (n=11)	NT (n=34)	NF (n=7)
SF	---			
NT	***	---		
NF	---	---	---	

	ST (n=201)	SF (n=10)	NT (n=63)	NF (n=11)
SF	---			
NT	---	---		
NF	---	---	---	

*	p<.050
**	p<.010
***	p<.001

The data report statistical significance in two comparisons involving intuitive-thinkers (NTs). Among government respondents, when compared against sensing-thinkers (STs), NTs score significantly higher in ethical sensitivity across the ten scenarios. The significance level for this indication is 99.9%. This finding is consistent with the higher ethical sensitivity scores for the intuitive and thinking preferences among government respondents discovered earlier. With this indication, the hypothesis can be rejected and it can be stated with 99.9% certainty that there is a statistically significant relationship between intuitive-thinkers and ethical sensitivity among government respondents.

Table 13 also shows that government intuitive-thinkers reported a significantly higher ethical sensitivity than industry intuitive-thinkers. This is also consistent with earlier findings which showed, a) government intuitives reporting higher than industry intuitives and, b) government thinkers reporting higher than government feelers, while industry feelers reported higher than industry thinkers.

> **Subsidiary Question 3B (*Pivotal*).** Is there a statistically significant relationship between ethical sensitivity and dominant function preferences, as characterized by the Myers-Briggs Type Indicator, among survey respondents.

As discussed in Chapter II, an individual' s dominant function preference will be either sensing, intuition, thinking or feeling. Analysis in this section consists of comparing sensing dominants to intuitive dominants among government and industry respondents, and doing the same between thinking dominants and feeling dominants. Each dominant preference is also compared between government and industry respondents. Analysis is conducted by doing a comparison of the mean ethical sensitivity scores. Full details, including appropriate Z-scores, are contained in Appendix L. Table 14 summarizes these findings.

TABLE 14

COMPARISON OF THE MEAN ETHICAL SENSITIVITY SCORES OF MYERS-BRIGGS TYPE INDICATOR DOMINANT FUNCTION PREFERENCES FOR GOVERNMENT AND INDUSTRY RESPONDENTS (N=466: 181 GOV; 285 IND)

	Sensors	Intuitives	Thinkers	Feelers
GOV	5.3550	5.6400	5.4408	4.7500
IND	5.1790	5.3674	5.2038	5.1429
SIG	---	---	---	---
*	p<.050			
**	p<.010			
***	p<.001			

GOV	Sensors (n=80)	Thinkers (n=71)
Intuitives (n=20)	---	
Feelers (n=10)		---

IND	Sensors (n=100)	Thinkers (n=132)
Intuitives (n=46)	---	
Feelers (n=7)		---

The following hypothesis is to be tested:

H_0: There is no statistically significant relationship between ethical sensitivity and dominant function preferences, as characterized by the Myers-Briggs Type Indicator, among survey respondents.

There were no significant differences for the mean comparisons of ethical sensitivity by dominant MBTI function preference. Therefore, the stated hypothesis cannot be rejected. There is no evidence to support a statistically significant relationship between ethical sensitivity and any of the four dominant MBTI function preferences. It is interesting to note in Table 14, however, that on both the government and industry scales, the mean ethical sensitivity for intuition dominants and thinking dominants is higher than for sensing and feeling dominants. The S-N indication is consistent with earlier analysis, however the T-F indication among industry respondents contradicts earlier analysis where those with a feeling preference reported a higher level of sensitivity than those with a thinking preference. It should be remembered that the earlier analysis was measuring preferences on the S-N scale, not sensing or intuition dominance.

The earlier determination that government intuitives reported a higher degree of ethical sensitivity than government sensors led to the expectation that intuition dominant individuals would report a significantly higher degree of ethical sensitivity. Since the data does not show this, respondents with intuition as an auxiliary function were analyzed to determine it they reported a higher degree of ethical sensitivity, thus driving the higher ethical sensitivity scores among intuitives, (Appendix L contains the Z-scores for this analysis). There was no statistically significant relationship reported between intuition auxiliaries and ethical sensitivity.

It may be that the loss of statistical significance among intuition dominants and auxiliaries is due to the added influence of feeling types (ENFJs, ENFPs, INFJs, and INFPs) among the applicable personality types. As shown earlier, feeling types reported a lower ethical sensitivity among government respondents. This, however, is only one possible explanation. Other combinations of preferences among the sixteen personality types may have some influence on the ethical sensitivity of intuitive types. Myers and McCaulley report relatively new research methods which examine type characteristics by specific combinations of preferences and the preferences' effects upon each other. There are 24 possible pairings of type preferences among the four scales and each has a particular, identifiable set of characteristics. Intuitives may be enthusiastic and insightful (-NF-), logical and ingenious (-NT-), adaptable innovators (-N-P), visionary decision makers (-N-J), thoughtful innovators (IN--), or action-oriented innovators (EN--), (Myers and McCaulley, 1985:31-38). Any of these types may report statistically significant relationships to ethical sensitivity. The discovery might not only explain the link between ethical sensitivity and intuition, it might help identify the effects of other preferences on intuition which cause the lack of significance between ethical sensitivity and intuition as a dominant or auxiliary function preference.

It should also be noted that government responses were again higher across all four dominants. This, too, is consistent with all previous analysis.

> **Subsidiary Question 3C(*Pivotal*).** Is there a statistically significant relationship between ethical sensitivity and the sixteen personality types, as characterized by the Myers-Briggs Type Indicator, among survey respondents?

In order to perform analysis on this question, analysis of the ethical sensitivity mean scores should be conducted comparing each personality type to each of the other fifteen personality types. As shown in Table 9, seven of the personality types have ten or fewer respondents, five having four or fewer. When stratified by government and industry, three groups have no respondents. Comparisons using samples of this size is determined to not be useful to this research. This weakness in the response rate for these personality types does not allow significant analysis of this question. The hypothesis statement,

> H_0: There is no statistically significant relationship between ethical sensitivity and personality type, as characterized by the Myers-Briggs Type Indicator, among survey respondents

cannot be reasonably addressed given the data collected. This subsidiary question is therefore, left unanswered by this research.

Summary and Overview

This chapter has described the significant demographic characteristics of the sample population. It has also provided the respondents' perceptions of the emphasis placed on ethical behavior at their workplace through written ethical policies, and whether the respondents agree with those policies. The chapter then went on to address five of the six subsidiary questions posed involving ethical sensitivity and MBTI personality type. The sixth subsidiary question could not be properly addressed due to insufficient data.

Chapter V will consider the implications of the findings shown in this chapter and state the conclusions of the researchers based on those findings.

V. CONCLUSIONS

This chapter will summarize the conclusions derived by the researchers based on the analysis conducted in Chapter IV. It first provides the answer to the overall research question. Then it presents implications of the data for each of the subsidiary questions which lead to the derivation of that answer.

Ethical Sensitivity and Personality Type

The research question is again restated, as follows:

> *What is the relationship between ethical sensitivity and personality type, as characterized by the Myers-Briggs Type Indicator, among survey respondents?*

To answer this question, a series of subsidiary research questions and hypotheses were derived to create a framework for the data analysis. The analysis performed in pursuit of the answers to these subsidiary questions substantiate a statistically significant relationship between ethical sensitivity and MBTI personality types. Specifically, the data revealed that the intuition preference and the intuition-thinking cognitive set of preferences are positively correlated to an individual's level of ethical sensitivity. Intuitves (N), and particularly intuitive-thinking (NT) types, tend to be more sensitive to the level of ethical consideration required in a given situation than other types.

This conclusion is thus far limited to the sampling of contract professionals who are members of the National Contract Management Association. With the discovery of this relationship, however, it becomes reasonable to consider that the correlation may exist beyond this narrowly defined group. It is conceivable that the relationship between ethical sensitivity and personality type may extend to the wider scope of business ethics and general ethical behavior.

Again, the emphasis of the ethical sensitivity construct is to determine to what degree individuals perceive that ethics are involved in the decisions they face. Certainly, behavioral decisions involving degrees of ethical consideration exist in many areas of life. It is safe to assume that a large portion of the general population must deal with such decisions at one time or another. This research has shown that, in this very narrow segment of the population, the awareness that individuals have to the ethical considerations mandated by a given situation depends to some degree on their personality type. Although it has yet to be established statistically, there is no reason to believe that this association between ethical sensitivity and personality type does not exist in a wider portion of the population when addressing other areas of ethical behavior and decision making. This study, then, is a contributory link to that further research.

Ethical Sensitivity and the Research Sample (Subsidiary Question 1)

The first subsidiary research question seeks to discover the nature of the ethical sensitivity responses among those sampled. It asks,

What are the characteristics of ethical sensitivity among survey respondents?

Two important points are established by the analysis performed for this question. First, the responses show that there are, indeed, different degrees of ethical sensitivity. There is evidence of this in the analysis of the difference between government and industry respondents (see Table 7). Government and industry respondents report significantly different ethical sensitivity aggregate mean scores over all ten posed scenarios, and in four of the ten scenarios when they are examined separately. The level of the statistical significance for this is 95% for the aggregate and for two of the individual scenarios, and 99% for the other two scenarios. This statistical evidence gives value to the ethical sensitivity construct. The ethical sensitivity measurement would be of little use if there were no degrees of sensitivity and everybody reported the same scores.

The other important discovery adds further value to the ethical sensitivity construct. The data shows that there are different ethical sensitivities associated with different situations. Table 6 shows that there are statistically significant differences in the ethical sensitivity mean scores associated with the ten scenarios. This is true in 82.2% (37 of the 45 possible cases) of the comparisons of two scenarios. In 78% of those cases (29 of 37), the level of the statistical significance was 99.9%. Thus, it is clearly established that ethical sensitivity depends not only on the group, but on the situation, as well.

Table 7 shows that both government's and industry's ethical sensitivity aggregate mean and median scores are above 5 on the seven-point Likert scale. This means that over the ten scenarios, in more than 50% of the cases, respondents slightly agreed, agreed, or strongly agreed that ethics were involved in the decision to be made in the scenario. These responses establish that the sample as a whole is sensitive to the ethics involved in typical situations they may face during the performance of their jobs.

Government respondents reported higher ethical sensitivity scores than industry respondents in aggregate (5.3867 vs. 5.2200) and on nine of the ten scenarios. The differences were statistically significant in three of the scenarios, two at levels of 99% and one at a level of 95%. The level of statistical significance for the comparison of the aggregate means was 95%.

Industry respondents reported high ethical sensitivity scores, as well. In fact, with a statistical significance level of 95%, industry reported a higher ethical sensitivity score on the scenario involving the arithmetic error in favor of the government. Jones established the concept of *moral proximity* (Jones, 1991: 376) which states that people are more aware of and concerned about issues which directly affect them or those they care about. In this scenario, industry may be victimized by one course of government action. That they are more sensitive to the ethical considerations involved in the

government's deciding which course to take can be readily explained by their close relationship to the outcome. Their moral proximity contributes to their higher sensitivity.

The sample's perception of its ethical sensitivity, as reported by their answers for these ten scenarios, speaks well for the efforts being made within the acquisition community to make its work force aware of the ethical implications of their actions. It should also give assurance to the membership of the National Contract Management Association, of which the research sample is a subset. Its commitment to the principles of ethical behavior in government contracting, and active support and propagation of those principles, as evident in the NCMA's Code of Ethics (Appendix C), is substantiated by the ethical sensitivity responses of the portion of their membership that made up this sample.

Distribution of Personality Types (Subsidiary Question 2)

The second subsidiary question called for examination of the distribution of personality type within the research sample. It is restated as follows:

> *Is there a statistically significant difference in the distribution of personality type, as characterized by the Myers-Briggs Type Indicator, among survey respondents and the general population?*

The question is accompanied by a null hypothesis statement which states that there is no difference between these groups.

> H_0: *There is no statistically significant difference in the distribution of personality type, as characterized by the Myers-Briggs Type Indicator, among survey respondents and the general population.*

Chi-squared analysis establishes the unique personality type distribution of the research sample when compared to a sample of the general population. The level of significance of the difference between the groups is 99.9%. Therefore, with a margin of error of .001, the above stated hypothesis is rejected. There is substantial evidence to show that the personality type distribution of the research sample is different from the distribution of the

general population, as measured by the Center for the Application of Psychological Type (CAPT).

Table 8 gives the difference in the MBTI distribution between the CAPT data bank sample and the sample of contract professionals. It shows that the sampling of contract professionals contains more sensing-thinking (ST) types than the CAPT data bank, particularly introverted sensing-thinking types (IST) among women. In general, there are a higher percentage of introverted, sensing, thinking types among the research sample than in the CAPT data bank sample.

As with the ethical sensitivity construct, proving a statistical difference in the MBTI distribution of the research sample establishes the value of the MBTI as a measurement of personality type by showing that it does, in fact, detect differences in type distribution from group to group.

Ethical Sensitivity and MBTI Scale Preferences (Subsidiary Question 3)

Having established the ethical sensitivity and personality type characteristics of the sample, the next three subsidiary questions lead to analysis which directly affects the answer to the overall research question. Thus, these questions are pivotal to the research effort. Subsidiary Question 3 and its associated null hypothesis are restated as follows:

> *Is there a statistically significant relationship between ethical sensitivity and the individual components of personality type, as characterized by the Myers-Briggs Type Indicator, among survey respondents?*
>
> *H_0: There is no statistically significant relationship between ethical sensitivity and the individual components of personality type, as characterized by the Myers-Briggs Type Indicator, among survey respondents.*

The relationship established by this research between ethical sensitivity and MBTI personality type is largely reliant upon the indication that intuitives report statistically

higher ethical sensitivity scores than sensors among government respondents. As reported in Table 11, there is a 95% level of significance to this finding. There is no other statistically significant indication from the comparisons between the preferences on any of the other three scales. By establishing this relationship, the null hypothesis can be rejected, and it can be stated that there is a relationship between ethical sensitivity and the intuition preference, as characterized by the MBTI.

The relationship between intuition and ethical sensitivity makes sense when one considers that decisions involving ethical awareness require a more symbolic and subjective type of thinking. Situations involving ethics are rarely simple and easily resolved by an objective review of statutes, regulations, or policies, as sensors prefer. More often, subjective interpretations are required to understand the forces affecting decisions, and the implications of relative decisions. The need for ethical consideration more often manifests itself in a notion about the scenario, not in concrete facts and events which are defined as being related to ethics. The recognition of the need for interpretive thinking, and interpretive thinking, itself, are typical ways intuitives perceive the world. Their propensity to be sensitive to the ethics involved in a given situation is consistent with the way they naturally assign subjective meanings to their perceptions.

The conflicting data involving thinkers and feelers lacks statistical significance. Neither the higher degree of ethical sensitivity among thinkers on the government scale, nor the higher degree of sensitivity among feelers on the industry scale, is statistically significant. Therefore, the conflict between the two can be attributable to perturbations in the data. This is not a comfortable conclusion, though, and is made less so when one considers that government thinkers reported higher sensitivities than industry thinkers with a 99% level of significance. Though industry reported a higher sensitivity than government for the feeling preference, the indication lacked statistical significance. These revelations suggest a possible relationship between ethical sensitivity and the thinking

preference, but the data on the preference scales do not support this. Further, as discussed in Chapter IV, both thinking and feeling types possess characteristics which seem to logically and intuitively be associated with ethical sensitivity.

There is enough ambiguity generated by this data about thinking and feeling types and ethical sensitivity to suggest there may be a relationship that is being masked by some unknown or undiscovered effects. Further data collection and research on the possible relationship between ethical sensitivity and the thinking-feeling scale is advisable to reduce or eliminate this ambiguity.

Ethical Sensitivity and the MBTI Cognitive Sets (Subsidiary Question 3A)

The next pivotal subsidiary question concerns MBTI cognitive sets. It asks,

> *Is there a statistically significant relationship between ethical sensitivity and the individual components of personality type, as characterized by the Myers-Briggs Type Indicator, among survey respondents?*

The associated hypothesis statement is,

> *H_0: There is no statistically significant relationship between ethical sensitivity and the individual components of personality type, as characterized by the Myers-Briggs Type Indicator, among survey respondents.*

This question leads to the only other statistically significant piece of evidence which drives the conclusion that there is a relationship between ethical sensitivity and personality type. On the government scale, intuitive-thinkers (NTs) report a much higher level of ethical sensitivity than sensing-thinkers (STs). There is a 99.9% level of significance associated with this evidence. This evidence calls for the null hypothesis to be rejected and leads to the conclusion that there is a statistically significant relationship between ethical sensitivity and the intuition-thinking (NT) set of cognitive preferences. Intuitive-thinkers (NTs) report higher ethical sensitivity scores than sensing-feelers (SFs) and intuitive feelers

(NFs), as well, but in both cases the Z-score is slightly below what is considered statistically significant.

The influence of the intuitive types is clearly present in these indications. They also show that thinkers report themselves to be more ethically sensitive when they are intuitive than when they are sensors. The fact that the only statistical significance was yielded by the NT/ST comparison causes speculation about the effect the sensing-intuition scale has upon thinkers. When thinkers are intuitive, they seem to be extremely sensitive to the ethics present in a situation. When thinkers are sensors, they are considerably less sensitive to the ethics involved in a situation. This dichotomy amongst thinkers along the sensing-intuition scale may explain the ambiguity along the thinking-feeling scale with regard to ethical sensitivity found earlier. It also reinforces the need for further data collection and research into these possible relationships.

Ethical Sensitivity and the MBTI Dominant Functions (Subsidiary Question 3B)

The next step in the analysis required investigation into the relationship between ethical sensitivity and personality dominance. The question is,

> *Is there a statistically significant relationship between ethical sensitivity and dominant function preferences, as characterized by the Myers-Briggs Type Indicator, among survey respondents?*

There were no statistically significant relationships to ethical sensitivity yielded from the comparison of dominant functions. So, the null hypothesis statement associated with this question,

> *H_0: There is no statistically significant relationship between ethical sensitivity and dominant function preferences, as characterized by the Myers-Briggs Type Indicator, among survey respondents,*

cannot be rejected. Among both government and contractor respondents, however, intuition dominants reported higher levels of ethical sensitivity than sensor dominants, and

thinking dominants reported a higher level of ethical sensitivity than feeling dominants.

Among government respondents, both comparisons yielded Z-scores just slightly less than what was necessary to suggest statistical significance. One would expect intuitive dominants to report significantly more ethical sensitivity than sensing dominants based on earlier indications about intuitives. The discussion in Chapter IV suggests that the influence of preferences upon one another among the sixteen types may account for the leveling of the significance of the relationship between ethical sensitivity and intuition dominants.

That thinking dominants came so close to reporting significantly more ethical sensitivity than feeling dominants is another indication to support the suggested relationship between ethical sensitivity and thinking, without actually having the statistical data to support this. Again, further data collection and research is warranted to cast light on the thinking-feeling scale and ethical sensitivity, and the role of its preferences as dominant functions.

Ethical Sensitivity and the Sixteen MBTI Types (Subsidiary Question 3C)

The question and its associated null hypothesis are again restated.

> *Is there a statistically significant relationship between ethical sensitivity and the sixteen personality types, as characterized by the Myers-Briggs Type Indicator, among survey respondents?*
>
> *H_0: There is no statistically significant relationship between ethical sensitivity and the sixteen personality types, as characterized by the Myers-Briggs Type Indicator, among survey respondents.*

Analysis of ethical sensitivity by individual MBTI personality type was prohibited by the low reported frequencies among many of the types. Therefore, the question could not be properly addressed, nor was there evidence to reject or fail to reject the hypothesis statement. There is value from this type of analysis, however, given sufficient data. One

would expect it to reinforce the effects of the intuitives by showing types with intuitive preferences to report significantly higher sensitivities. Given the indications from analysis of the cognitive sets, one would expect NT types (INTJs, INTPs, ENTPs, ENTJs) to report the highest ethical sensitivity scores, overall.

One would hope that individual type analysis would also cast light on the ambiguity apparent on the thinking-feeling scale. Perhaps this analysis would identify influences which affect this scale and its relationship to ethical sensitivity. Expanding the database to ensure adequate numbers of each personality type is warranted, and further research is required to analyze the relationship between ethical sensitivity and individual types. For now, the question remains unanswered.

Summary and Overview

This chapter has answered the research question by stating that there is a statistically significant relationship between ethical sensitivity and personality type, as characterized by the Myers-Briggs Type Indicator. It showed the reasoning behind this conclusion by discussing the implications of the data analysis associated with each of the subsidiary questions. Statistically significant relationships were concluded between ethical sensitivity and the intuition preference and the intuition-thinking cognitive set of preferences. A major ambiguity was also identified concerning the relationship between ethical sensitivity and the thinking and feeling preferences. Chapter VI contains recommendations for further research to address this ambiguity and expand the scope of research into the relationship between ethical sensitivity and personality type. It also contains recommendations to management for effective use of the information uncovered by this research.

VI. Recommendations

This research examined the relationship between ethical sensitivity and personality type as measured by the Myers-Briggs Type Indicator (MBTI) for contract professionals. The survey instrument was designed to collect data on demographic characteristics of the population, their perceptions relating to organizational ethics policies, ethical sensitivity, and MBTI personality type. Chapters IV and V discussed the analysis of the data and the conclusions that could be drawn as a result of the statistical tests performed. The following recommendations are made regarding the results of this research and possible areas for future research.

Enhancement of the Survey Instrument.

Ethical sensitivity scores were based on the responses of the survey population regarding scenarios that contract professionals may encounter in the performance or their duties. The scenarios involved both government and industry employees who were facing decisions that may or may not require ethical considerations. Future researchers should consider making the scenarios as generic as possible in order to eliminate any potential bias of business settings relating to the ethical sensitivity scores. The scenarios should be written such that there is no distinction made between government or industry employees. Another recommendation is to expand the scope of the survey by including scenarios about different business practices involving bribery, fairness, honesty, confidentiality, advertising, coercion, or self-interest . The scenarios would not necessarily relate to the defense acquisition industry and could be adopted from other related research efforts.

Ethical Policies.

The research established that a large majority of the organizations have written ethical policies to guide ethical behavior. Also, the policies are distributed to the employees, training is conducted regarding the policies, and a large majority of employees agree or strongly agree with the policies. Further research should examine the differences between educational and training programs that are conducted by various organizations. The data should then be combined with ethical sensitivity and MBTI personality type data to examine whether education and training are moderating variables which affect ethical sensitivity. Furthermore, an analysis of the data should be performed to determine whether these programs influence some personality types more than others, and visa versa.

Additional MBTI Research.

Subsidiary Question 3 examined whether a statistically significant relationship between ethical sensitivity and individual components of personality types exists. As previously discussed in Chapters IV and V, the mean ethical sensitivity score for government thinkers (T) is higher than for government feelers (F). On the other hand, industry feelers (F) reported a higher ethical sensitivity score than industry thinkers (T). The contradiction warrants further investigation into the possible underlying causes for this finding. This should be accomplished by obtaining a larger sample size and expanding the scope of the survey to include more general business practices. A larger sample size will also provide additional data to examine the relationship between ethical sensitivity and the sixteen MBTI personality types.

National Contract Management Association

Since this research has established a relationship between ethical sensitivity and personality type, and because further research may expand these findings and better define

their implications and use, the NCMA should make efforts to determine the MBTI personality types of its membership. An association-wide effort to administer the survey and make its results part of its national database will be useful not only for further research efforts, but in the implementation of recommendations involving ethical sensitivity that will likely result from that research.

Government and Industry Acquisition Organizations

The relatively high ethical sensitivities reported by both government and industry respondents is an indication that the effort to increase ethical awareness has been successful, thus far. These programs should be continued and expanded to capture the relatively small percentage of respondents who seem to still be unaware of their existence.

Government and industry acquisition organizations are also advised to determine the MBTI personality types of their employees. By identifying personality types, managers can conduct their own research into the attitudes and influences of these types about ethics and ethical awareness and behavior. This may help to gain insights into ways to improve ethics programs to increase the ethical sensitivities of all personality types. As the body of knowledge involving ethical sensitivity and personality type increases, MBTI personality type information will become more valuable and useful.

Association for Psychological Type (APT)

This research suggests a rich area of further study involving the Myers-Briggs Type Indicator. The APT should seek-out and sponsor initiatives which expand the scope of ethical sensitivity research and the relationships between ethical sensitivity and personality type. Wherever the MBTI can be used to expand the body of knowledge on a particular subject and, ultimately, improve interpersonal understandings and behaviors, it not only benefits the particular subject, it also benefits society as it is affected by that

subject. It also increases the prestige and reputation of the MBTI model and type indicator. In this case, there exists the opportunity to further understand ethical attitudes and behaviors as they relate to personality type, and improve ethical behavior by developing ways to best influence different personality types about ethics.

Summary.

This research has yielded several findings and conclusions about the population comprising the National Contract Management Association. The data from this research substantiates that there are a variety of MBTI types among the NCMA membership. In addition, the ethical sensitivity scores from respondents establishes different degrees of sensitivities among the ten scenarios. Furthermore, statistically significant relationships exist between ethical sensitivity and the intuition preference and the intuition-thinking cognitive set of preferences. By establishing these relationships, the research objective is fulfilled. There are statistically significant relationships between ethical sensitivity and personality type, as characterized by the Myers-Briggs Type Indicator.

Although the government component of the population reported slightly higher ethical sensitivity scores than the industry component, the NCMA should take pride in the fact that the reported ethical sensitivity of the sample was fairly high. This, no doubt, can be attributed to the continuing efforts of the NCMA to expand the body of knowledge regarding ethics through its meetings, conferences, and publications which are designed to address today's most pressing problems and issues facing contract professionals.

Appendix A: Code of Ethics for Government Service

1. Put loyalty to the highest moral principles and to country above loyalty to persons, party, or Government department.

2. Uphold the constitution, laws, and regulations of the United States and of all governments therein and never be a party to their evasion.

3. Give a full day's labor for a full day's pay; giving earnest effort and best thought to the performance of duties.

4. Seek to find and employ more efficient and economical ways of getting tasks accomplished.

5. Never discriminate unfairly by the dispensing of special favors or privileges to anyone, whether for remuneration or not; and never accept for himself or herself or for family members, favors or benefits under circumstances which might be construed by reasonable persons as influencing the performance of governmental duties.

6. Make no private promises of any kind binding upon the duties of office, since a Government employee has no private word which can be binding on public duty.

7. Engage in no business with the Government, either directly or indirectly, which is inconsistent with the conscientious performance of governmental duties.

8. Never use any information gained confidentially in the performance of governmental duties as means for making private profit.

9. Expose corruption wherever discovered.

10. Uphold these principles, ever conscious that public office is a public trust.

APPENDIX B: Principles of Business Ethics and Conduct

1. Each company will have and adhere to a written code of business ethics an conduct.

2. The company's code establishes the high values expected of its employees and the standard by which they must judge their own conduct and that of their organization; each company will train its employees concerning their personal responsibilities under the code.

3. Each company will create a free and open atmosphere that allows and encourages employees to report violations of its code to the company without fear of retribution for such reporting.

4. Each company has the obligation to self-govern by monitoring compliance with federal procurement laws and adopting procedures for voluntary disclosure of violations of federal procurement laws and corrective actions taken.

5. Each company has a responsibility to each of the other companies in the industry to live by standards of conduct that preserve the integrity of the defense industry.

6. Each Company must have public accountability for its commitment to these principles.

Appendix C: National Contract Management Association Code of Ethics

Preamble
Each member of the National Contract Management Association accepts the obligation to uphold the purposes of the organization as set forth in the NCMA constitution, to strive for the increase of knowledge in job performance and the field of contract management, and to abide by the letter of and spirit of the ethical standards of the Association.

As prescribed in Article X of the By-Laws to the Constitution of NCMA, this Code of Ethics establishes for the member a foundation of professional conduct. However, ethical conduct may require more than merely abiding by the letter of the Code. It is therefore incumbent upon each member of the Association to make a commitment to honorable behavior in all aspects of work and professional activity.

Standards
Each Member of NCMA shall:

1. Strive to attain the highest professional standard of job performance, to exercise diligence in carrying out the duties of his or her employer, and to serve that employer to the best of one's ability.

2. Keep informed of acquisition developments, through academic course work and attendance at symposia, in order increase knowledge, skill and thoroughness of work preparation.

3. Respect the confidence and trust reposed in the member of one's employer.

4. Conduct oneself in such a manner as to bring credit upon the Association, as well as to maintain trust and confidence in the integrity of the acquisition process.

5. Avoid engagement in any transaction that might conflict with the proper discharge of one's employment duties by reason of a financial interest, family relationship, or any other circumstance causing a breach of confidence in the acquisition process.

6. Not Knowingly influence others to commit any act that would constitute a violation of this Code.

Appendix D: The Myers-Briggs Type Table, Formats for the Functional Preferences, and Descriptions of the Sixteen Personality Types

ISTJ	**ISFJ**	**INFJ**	**INTJ**
ISTP	**ISFP**	**INFP**	**INTP**
ESTP	**ESFP**	**ENFP**	**ENTP**
ESTJ	**ESFJ**	**ENFJ**	**ENTJ**

Extraversion-Introversion Types

I
E

Sensing-Intuition Types

S	**N**

Thinking-Feeling Types

T	**F**	**F**	**T**

Judging-Perceiving Types

J
P
P
J

Descriptions of the Sixteen Personality Types
(Myers and McCaulley, 1985:20-21)

ISTJ	ISFJ	INFJ	INTJ
Serious, quiet, earn success by concentration and thoroughness. Practical, orderly, matter-of-fact, logical, realistic and dependable. See to it that everything is well organized. Take responsibility. Make up their own minds as to what should be accomplished and work toward it steadily, regardless of protests or distractions.	Quiet, friendly, responsible and conscientious. Work devotedly to meet their obligations and serve their friends and school. Thorough, painstaking, accurate. May need time to master technical subjects, as their interests are not often technical. Patient with detail and routine. Loyal, considerate, concerned with how other people feel.	Succeed by perseverance, originality and desire to do whatever is needed or wanted. Put their best efforts into their work. Quietly forceful, conscientious, concerned for others. Respected for their firm principles. Likely to be honored and followed for their clear convictions as to how best to serve the common good.	Have original minds and great drive which they use only for their own purposes. In fields that appeal to them they have a fine power to organize a job and carry it through with or without help. Skeptical, critical, independent, determined, often stubborn. Must learn to yield less important points in order to win the most important.
ISTP	**ISFP**	**INFP**	**INTP**
Coon onlookers, quiet, reserved, observing and analyzing life with detached curiosity and unexpected flashes of original humor. Usually interested in impersonal principles, cause and effect, or how and why mechanical things work. Exert themselves no more than they think necessary, because any waste of energy would be inefficient.	Retiring, quietly friendly, sensitive, modest about their abilities. Shun disageements, do not force their opinions or values on others. Usually do not care to lead but are often loyal followers. May be rather relaxed about assignments or getting things done, because they enjoy the present moment and do not want to spoil it by undue haste or exertion.	Full of enthusiasms and loyalties, but seldom talk of these until they know you well. care about learning, ideas, language, and independent projects of their own. Apt to be on yearbook staff, perhaps as editor. Tend to undertake too much, then somehow get it done. Friendly, but often too absorbed in what they are doing to be sociable or notice much.	Quiet, reserved, brilliant in exams, especially in theoretical or scientific subjects. Logical to the point of hair-splitting. Interested mainly in ideas, with little liking for parties or small talk. Tend to have very sharply defined interests. Need to choose careers where some strong interest of theirs can be used and useful.

ESTP	ESFP	ENFP	ENTP
Matter-of-fact, do not worry or hurry, enjoy whatever comes along. Tend to like mechanical things and sports, with friends on the side. May be a bit blunt or insensitive. Can do math or science when they see the need. Dislike long explanations. Are best with real things that can be worked, handled, taken apart or put back together.	Outgoing, easygoing, accepting, friendly, fond of a good time. Like sports and making things. Know what's going on and join in eagerly. Find remembering facts easier than mastering theories. Are best in situations that need sound common sense and practical ability with people as well as with things.	Warmly enthusiastic, high-spirited, ingenious, imaginative. Able to do almost anything that interests them. Quick with a solution for any difficulty and ready to help anyone with a problem. Often rely on their ability to improvise instead of preparing in advance. Can always find compelling reasons for whatever they want.	Quick, ingenius, good at many things. Stimulating company, alert and outspoken, argue for fun on either side of the question. Resourceful in solving new and challenging problems, but may neglect routine assignments. Turn to one new interest after another. Can always find logical reasons for whatever they want.
ESTJ	**ESFJ**	**ENFJ**	**ENTJ**
Practical realists, matter-of-fact, with natural head for business or mechanics. Not interested in subjects they see no use for, but can apply themselves when necessary. Like to organize and run activities. Tend to run things well, especially if they remember to consider other people's feelings and points of view when making their decisions.	Warm-hearted, talkative, popular, conscientious, born cooperators, active committee members. Always doing something nice for someone. Work best with plenty of encouragement and praise. Little interest in abstract thinking or technical subjects. Main interest is in things that directly and visibly affect people's lives.	Responsive and responsible. Feel real concern for what others think and want, and try to handle things with due regard for other people's feelings. Can present a proposal or lead a group discussion with ease and tact. Sociable, popular, active in school affairs, but put time enough on their studies to do good work.	Hardy, frank, able in studies, leaders in activities. Usually good in anything that requires reasoning and intelligent talk, such as public speaking. Are well-informed and keep adding to their fund of knowledge. May sometimes be more positive and confident than their experience in an area warrants.

Appendix E: Ethical Sensitivity Questionnaire

SECTION I, Part 1 - Demographic Data

Please use the enclosed **orange colored** scan sheet, AFIT Form 11C, to answer the following questions.

1. What is your age?
    1. Less than 25 years old
    2. 26 - 35 years old
    3. 36 - 45 years old
    4. 46 - 55 years old
    5. Over 55 years old
2. What is your Ethnic origin?
    1. Caucasian
    2. Black
    3. Hispanic
    4. Oriental
    5. Other (please indicate here)_____

3. Who is your employer?
    1. Federal Government
    2. State Government
    3. Local Government
    4. Private Industry
    5. Other (please indicate here)_____

4. If you are employed by private industry, is your organization considered a small business?
    1. Yes
    2. No
    3. Not employed by private industry

5. How many total years of contracting experience do you have?
    1. 0 - 5 years
    2. 6 - 10 years
    3. 11 - 15 years
    4. 16 - 25 years
    5. Over 25 years

(Continued on Next Page)

6. What is your current position level?
    1. Non-supervisory
    2. Manager/supervisor
    3. Executive

7. Which most closely represents your current position title?
    1. Administrator/Contracting Officer
    2. Buyer/purchasing agent
    3. Clerical
    4. Cost/price/financial analyst
    5. Other (please indicate here)_____

8. What is the highest education level that you have completed?
    1. High School degree.
    2. Associate Degree (Technical School or equivalent).
    3. Bachelor Degree.
    4. Masters Degree (JD or equivalent)
    5. Doctoral Degree.

SECTION I, Part 2 - Ethics Policy Questions

9. Does your organization have a written policy governing ethical behavior?
    1. yes 2. no

If your response to the above question is no, please skip questions 10 through 15 and go directly to Part 3 - Scenarios. If you answered yes, please continue with question 10 and indicate your amount of agreement with the statements in 10 through 15.

10. My organization's written ethics policy provides guidance in relation to employee behavior towards customers/suppliers.
    1. Strongly disagree
    2. Disagree
    3. Neither agree or disagree
    4. Agree
    5. Strongly Agree

(Continued on Next Page)

11. My organization's written policy is distributed to all employees.
    1. Strongly disagree
    2. Disagree
    3. Neither agree or disagree
    4. Agree
    5. Strongly Agree

12. All new employees are provided with an orientation to my organization's ethical policies.
    1. Strongly disagree
    2. Disagree
    3. Neither agree or disagree
    4. Agree
    5. Strongly Agree

13. My organization conducts employee training programs regarding the policies governing ethical behavior.
    1. Strongly disagree
    2. Disagree
    3. Neither agree or disagree
    4. Agree
    5. Strongly Agree

14. There is an ongoing program of communication to employees, spelling out and re-emphasizing my organization's policies governing ethical behavior.
    1. Strongly disagree
    2. Disagree
    3. Neither agree or disagree
    4. Agree
    5. Strongly Agree

15. I agree with my organization's ethical polices.
    1. Strongly disagree
    2. Disagree
    3. Neither agree or disagree
    4. Agree
    5. Strongly Agree

(Continued on Next Page)

SECTION I, Part 3 - SCENARIOS. This portion of the survey collects your responses to 10 scenarios which may be seen as involving ethical consideration. These responses will be correlated with your responses from the MBTI portion of the survey (SECTION II).

According to noted ethics author P.W. Taylor, ethics can be defined as **"inquiry into the nature and grounds of morality where the term morality is taken to mean moral judgments, standards, and rules of conduct."**

Decisions faced by contract professionals regarding the performance of their jobs may or may not require ethical considerations. Whether or not a given situation is a question of ethics, and to what degree it is a question of ethics, will depend on how an individual perceives a given situation.

Please read the following ten scenarios and for each indicate to what extent you either agree or disagree that ethical considerations are involved in making the decision for each scenario. Base your answer on the amount of ethical consideration you feel is necessary for each decision by using the following 7 point scale. Continue to use the orange scan sheet to record your responses.

Strongly Disagree	Disagree	Slightly Disagree	Neither Agree or Disagree	Slightly Agree	Agree	Strongly Agree
*	*	*	*	*	*	*
1	2	3	4	5	6	7

16. Dave Williams is the proposal manager for a program solicitation. He held a staff meeting to review the forthcoming proposal which was to be submitted in two weeks to the Government. During the discussion, he mentioned the importance of obtaining marketing research information on their competitors. Several days later, Dave received a document in the mail sent to him from an anonymous source. The document contains information about a competitor's design for the upcoming solicitation. It does not contain any pricing information regarding their bid. As Dave sits in his office, he ponders whether or not he should use the information in the preparation of his bid. **Please indicate to what extent you agree or disagree that ethical considerations are involved in making the decision of whether or not to use this information.**

(Continued on Next Page)

Strongly Disagree	Disagree	Slightly Disagree	Neither Agree or Disagree	Slightly Agree	Agree	Strongly Agree
*	*	*	*	*	*	*
1	2	3	4	5	6	7

17. JoAnn Daily works as a financial analyst for a government product center. JoAnn is currently pursuing an advanced degree at the local university. As part of one of her projects, JoAnn will need to complete a research paper that includes the use of graphs and charts. Since her personal computer at work contains both word processing and graphics software, JoAnn is considering doing the project at the office after work hours. She can complete the project, save it on a diskette, print it out on the organization's laser printer, and reproduce copies for her personal files. **Please indicate to what extent you agree or disagree that ethical considerations are involved in making the decision of whether or not to use government resources to complete the project.**

18. John Grier is an inspector in the Quality Assurance department. He is responsible for performing the reliability tests on subcontractor electronic components. His organization is currently performing work on a government contract which is behind schedule. John's boss instructs him to reduce the reliability test time required for a particular subcontractor component from 15 to 10 hours in order to speed up deliveries. John's boss tells him the reduction in test time shouldn't pose a reliability problem since the subcontractor has demonstrated better than minimum quality levels in the past. **Please indicate to what extent you agree or disagree that ethical considerations are involved in making the decision of whether or not to reduce test time.**

19. Becky Sims is a contracting officer for the government. She has just completed negotiations on a firm fixed price contract. As part of her responsibilities, Becky has to prepare a summary of the negotiations detailing the specific terms and conditions that were agreed to by the contractor and the government. In addition, she must also include a summary of the price negotiations. In her review of the price figures, she noticed the contractor's bid contained an arithmetic error. The error is in the government's favor. Becky is considering whether or not to inform the contractor. **Please indicate to what extent you agree or disagree that ethical considerations are involved in making the decision of whether or not to inform the contractor of the error.**

(Continued on Next Page)

Strongly Disagree	Disagree	Slightly Disagree	Neither Agree or Disagree	Slightly Agree	Agree	Strongly Agree
*	*	*	*	*	*	*
1	2	3	4	5	6	7

20. Don Jarret is a program manager on the space shuttle program. His organization is responsible for the re-design of the space shuttle's cockpit. During one of Don's program status presentations, he briefs from a slide containing reliability information regarding several critical components. Several government officials have questions regarding the reliability data being presented. This specific chart was prepared by Don's lead design engineer who is not present at the meeting. In addition, Don has not personally reviewed the basis for the figures. Don doesn't want to look as if he doesn't know what's going on with the program in front of the customer. He considers whether he should assert that he is confident the figures are correct or tell them he will need to get back with them later. **Please indicate to what extent you agree or disagree that ethical considerations are involved in making the decision of whether or not to the tell the customer he is unfamiliar with the reliability figures.**

21. Steve Rhodus is the cost analyst for one of the government's major programs. The program is in the second year of its four year development. The program is scheduled for its annual review where the headquarters will assess whether the program should continue to receive funding. As part of the review, Steve's boss will need to provide information regarding cost estimates for completion of the project. Steve has performed a detailed cost analysis of the contractor's submitted financial data. According to his calculations, he has estimated that the program will be 10% over budget and six to nine months behind schedule. At the Program Status Briefing, Steve's boss says that the contractor is experiencing a few minor technical difficulties which might impact the delivery schedule, but that the cost should be consistent with the established funding profile. Steve is in attendance at the briefing and is considering whether or not to volunteer additional information to the reviewing officials. **Please indicate to what extent you agree or disagree that ethical considerations are involved in making the decision of whether or not volunteer the additional information.**

(Continued on Next Page)

Strongly Disagree	Disagree	Slightly Disagree	Neither Agree or Disagree	Slightly Agree	Agree	Strongly Agree
*	*	*	*	*	*	*
1	2	3	4	5	6	7

23. Doug Bingham is a program manager for a manufacturing firm under contract with the government. During a program status meeting at his facility, one of the government program manger asked him if he can have some of his engineers review and comment on a document. Upon Doug's inspection of the document, he discovers that the draft specification appears to be related to one of the government's upcoming solicitations on which his company may want to bid. The document does not contain any restrictive markings nor does it contain any classified data. Doug considers whether he should provide the review or decline to review the document . **Please indicate to what extent you agree or disagree that ethical considerations are involved in making the decision of whether or not to allow his engineers to review the document.**

24. Steve Couples and Allen Sorrels work as design engineers for competing contractors in the aerospace and electronics business. Steve and Allen are friends and share similar interests in hunting, fishing, and golf. During one of their recent outings, Allen confided in Steve that he was very disappointed with the raise he had been given by his company. Allen felt that since he had worked hard in the special projects department in his organization, he should have received a generous raise. When Steve goes back to the office on Monday, he considered whether he should let his company's engineering director know that Allen is not happy and may be open to switching companies. The addition of Allen Sorrels to the design staff of Steve's organization would no doubt enhance their competitive position. **Please indicate to what extent you agree or disagree that ethical considerations are involved in making the decision of whether or not to inform the engineering director of Allen's situation.**

(Continued on Next Page)

Strongly Disagree	Disagree	Slightly Disagree	Neither Agree or Disagree	Slightly Agree	Agree	Strongly Agree
*	*	*	*	*	*	*
1	2	3	4	5	6	7

25. Jim Peterson was recently promoted to the position of Director of Program Management. While reviewing the files of his predecessor, he discovered a two year old report on the Early Warning Radar System. The confidential report indicates one of the circuit board components of the radar contained flawed silicon microchips. At the time, half of the radar systems had already been sent to government operating locations. It would have been very expensive to send contractor teams out to the operating locations for additional in-field testing. Since the particular board was part of a redundant (back-up) system, the company decided it would be cheaper to wait for the board to fail and let the government send it back to the contractor's facility. At that time the repairs would be done at no cost to the government. Jim advised the Vice President of the Division of the situation. The Vice President thanked Jim for his candor and said he would decide the best way to handle the situation. After several weeks Jim learned that the Vice President took no action. Jim is contemplating whether or not to elevate the situation to a higher level. **Please indicate to what extent you agree or disagree that ethical considerations are involved in making the decision of whether or not to elevate the situation.**

End of SECTION I. Please complete SECTION II, the Myers-Briggs Type Indicator. When you have finished SECTION II, place the questionnaire and both answer sheets in the stamped pre-addressed envelope provided and place in the mail.

(Continued on Next Page)

SECTION II - Myers- Briggs Type Indicator
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Please contact Consulting Psychologists Press, Inc, Palo Alto, CA 94303 from Myers-Briggs Type Indicator - Form G by Katherine C. Briggs and Isabel Briggs Meyers for copy of Section II copyrighted material.

Calculated Z Scores for Determining Statistical Significance

(N=466)	Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25
MEAN	5.8712	4.8176	5.4185	6.1631	5.4399	5.3305	5.6803	5.2039	3.1931	5.7296
STDEV	1.6541	1.9174	1.8845	1.5110	1.6466	1.6894	1.7969	1.8042	1.8320	1.6037
Z Score Test										
Q16		8.9821	3.8981	-2.8121	3.9894	4.9374	1.6881	5.8859	23.4225	1.3270
Q17			-4.8246	-11.8980	-5.3153	-4.3325	-7.0868	-3.1671	13.2235	-7.8762
Q18				-6.6548	-0.1851	0.7504	-2.1704	1.7756	18.2778	-2.7145
Q19					6.9854	7.9302	4.4396	8.7990	26.9982	4.2469
Q20						1.0014	-2.1288	2.0861	19.6900	-2.7207
Q21							-3.0616	1.1058	18.5146	-3.6990
Q22								4.0387	20.9226	-0.4424
Q23									16.8812	-4.7016
Q24										-22.4889

Positive Z score values indicate that the question on the vertical Axis had a higher ethical sensitivity mean than the question on the horizontal axis

Negative Z score values indicate that the question on the horizontal axis had a higher ethical sensitivity mean than the question on the vertical axis

Levels of Statistical Significance

99.9% level where p<.001 Test for Statistical Significance: /Z/ > 3.270

99.0% level where p<.01 Test for Statistical Significance: 2.575 > /Z/ > 3.270

95.0% level where p<.05 Test for Statistical Significance: 1.960 > /Z/ > 2.575

Levels not considered Statistically Significant for purposes of this research

less than 95% where p>.05 Test Statistic: /Z/ <1.960

Appendix G: Z Score Comparison Between Ethical Sensitivity for Scenarios Between Government and Private Industry to Determine Statistical Significance (N=466: 181 GOV; 285 IND)

Calculated Z Score for Determining Statistical Significance

GOV (N=181	Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Avg Es
MEAN	5.86188	5.12707	5.54696	5.93370	5.46961	5.55249	5.84530	5.46409	3.34254	5.72376	5.38674
STDEV	1.74411	1.76080	1.70433	1.64520	1.69162	1.50324	1.56288	1.58292	1.79932	1.60241	0.86560
IND (N=285)											
MEAN	5.87719	4.62105	5.33684	6.30877	5.42105	5.18947	5.57544	5.03860	3.09825	5.73333	5.22000
STDEV	1.59743	1.98859	1.98911	1.40275	1.62016	1.78587	1.92613	1.91600	1.84929	1.60735	0.87343
Z Score Test	-0.09542	2.87377	1.21452	-2.53691	0.30700	2.35925	1.65738	2.60279	1.41311	-0.06280	2.01960
Stat Sig	---	**	---	*	---	*	---	**	---	---	*

Positive Z score values indicate Government respondents had a higher ethical sensitivity mean than Private Industry respondents for a particular Scenario (question)

Negative Z score values indicate that Private Industry Respondents had a higher ethical sensitivity mean than Government respondents for a particular Scenario (question)

Levels of Statistical Significance

99.9% level where p<.001 Test for Statistical Significance: /Z/ > 3.270

99.0% level where p<.01 Test for Statistical Significance: 2.575 > /Z/ > 3.270

95.0% level where p<.05 Test for Statistical Significance: 1.960 > /Z/ > 2.575

Levels not considered Statistically Significant for purposes of this research less than 95% where p>.05 Test Statistic: /Z/ <1.960

Appendix H: Comparison of the Distribution of Personality Type, as Characterized by the Myers Briggs-Type Indicator, Between the Database of the Center for the Application of Psychological Type (CAPT) and the Research Sample of Contract Professionals by Males and Females

	ISTJ	ISFJ	INFJ	INTJ	ISTP	ISFP	INFP	INTP
CAPT Males Frequency	2432	695	411	1153	963	474	758	1105
Percentage of Sample	15.40%	4.40%	2.60%	7.30%	6.10%	3.00%	4.80%	7.00%
CAPT Females Frequency	1654	1739	810	675	456	726	1063	540
Percentage of Sample	9.80%	10.30%	4.80%	4.00%	2.70%	4.30%	6.30%	3.20%
RS Males Frequency	84	2	0	17	60	2	0	19
Percentage of Sample	27.10%	0.65%	0.00%	5.48%	19.35%	0.65%	0.00%	6.13%
Expected Frequency	48	14	8	23	19	9	15	22
RS Females Frequency	34	0	2	10	19	1	4	19
Percentage of Sample	19.10%	0.00%	1.12%	5.62%	10.67%	0.56%	2.25%	10.67%
Expected Frequency	17	18	9	7	5	8	11	6
Chi-Squared Analysis								
Chi-Squared Analysis-Males	27.5406	9.9333	8.0600	1.4007	89.2855	5.7301	14.8800	0.3359
Chi-Squared Analysis-Females	15.7132	18.3340	5.0122	1.1649	41.9204	5.7847	4.6408	31.0738
Sum of the Chi-Squares for Males and Females: n=2; df=1	43.2538 ***	28.2673 ***	13.0722 ***	2.5656 —	131.2059 ***	11.5148 ***	19.5208 ***	31.4098 ***

*** 99.9% level of significance where p<.001. Test for statistical significance: where n=2 and df=1:
Chi-Squared Sum>10.83; where n=16 and df=15: Chi-Squared Sum>37.70.

** 99.0% level of significance where p<.010. Test for statistical significance: where n=2 and df=1:
6.64<Chi-Squared Sum<10.83; where n=16 and df=15; 30.58<Chi-Squared Sum<37.70.

* 95.0% level of significance where p<.050. Test for statistical significance: where n=2 and df=1:
3.84<Chi-Squared Sum<6.64; where n=16 and df=15: 25.00<Chi-Squared Sum<30.58.

Less than 95% where p>.05 Test statisitic: where n=2 and df=1:
Chi-Squared Sum<3.84; where n=16 and df=15: Chi-Squared Sum<25.00.

	ESTP	ESFP	ENFP	ENTP	ESTJ	ESFJ	ENFJ	ENTJ	
									SUM
CAPT Males Frequency	932	490	853	1090	2211	695	426	1090	15775
Percentage of Sample	5.90%	3.10%	5.40%	6.90%	14.00%	4.40%	2.70%	6.90%	99.90%
CAPT Females Frequency	473	962	1654	692	1705	1806	1080	878	16914
Percentage of Sample	2.80%	5.70%	9.80%	4.10%	10.10%	10.70%	6.40%	5.20%	100.20%
RS Males Frequency	36	3	0	16	59	8	0	4	310
Percentage of Sample	11.61%	0.97%	0.00%	5.16%	19.03%	2.58%	0.00%	1.29%	100.00%
Expected Frequency	18	10	17	21	43	14	8	21	310
RS Females Frequency	20	4	11	17	27	3	2	5	178
Percentage of Sample	11.24%	2.25%	6.18%	9.55%	15.17%	1.69%	1.12%	2.81%	100.00%
Expected Frequency	5	10	17	7	18	19	11	9	178
Chi-Squared Analysis									Sum of the Chi-Squares for Personality Types n=16.df=15
Chi-Squared Analysis-Males	17.1484	4.5465	16.7400	1.3582	5.6074	2.3321	8.3700	14.1380	227.4066 ***
Chi-Squared Analysis-Females	45.2408	3.7230	2.3805	12.8979	4.5276	13.5185	7.7431	1.9570	215.6323 ***
Sum of the Chi-Squares for Males and Females: n=2; df=1	62.3892 ***	8.2695 **	19.1205 ***	14.2561 ***	10.1349 **	15.8506 ***	16.1131 ***	16.0950 ***	

*** 99.9% level of significance where p<.001. Test for statistical significance: where n=2 and df=1:
Chi-Squared Sum>10.83; where n=16 and df=15: Chi-Squared Sum>37.70.

** 99.0% level of significance where p<.010. Test for statistical significance: where n=2 and df=1:
6.64<Chi-Squared Sum<10.83; where n=16 and df=15; 30.58<Chi-Squared Sum<37.70.

* 95.0% level of significance where p<.050. Test for statistical significance: where n=2 and df=1:
3.84<Chi-Squared Sum<6.64; where n=16 and df=15: 25.00<Chi-Squared Sum<30.58.

Less than 95% where p>.05 Test statisitic: where n=2 and df=1:
Chi-Squared Sum<3.84; where n=16 and df=15: Chi-Squared Sum<25.00.

Appendix I: Z Score Comparison of Ethical Sensitivity for the Eight MBTI Preferences for Government and Industry Respondents (N=466: 181 GOV; 285 IND)

Test for Statistical Significance Between Eight MBTI Preferences for Government Respondents

GOV	Extraversion(E)	Introversion (I)	(E) vs. (I)	Sensing (S)	Intuition (N)	(S) vs. (N)	Thinking(T)	Feeling (F)	(T) vs. (F)	Judgement (J)	Perception (P)	(J) vs. (P)
MEAN	5.392424	5.383478		5.311429	5.643902		5.419632	5.088889		5.314000	5.476543	
STDEV	0.983762	0.794491		0.871869	0.801576		0.835394	1.085676		0.944738	0.752707	
NUMBER	66	115		140	41		163	18		100	81	
Z Score Test			0.063018			-2.288790			1.252200			-1.288243
Stat Sig			---			*			---			---

Test for Statistical Significance Between Eight MBTI Preferences for Private Industry Respondents

IND	Extraversion(E)	Introversion (I)	(E) vs. (I)	Sensing (S)	Intuition (N)	(S) vs. (N)	Thinking(T)	Feeling (F)	(T) vs. F)	Judgement (J)	Perception (P)	(J) vs. (P)
MEAN	5.223913	5.216327		5.184834	5.320270		5.201509	5.465000		5.180137	5.261871	
STDEV	0.824228	0.920024		0.898813	0.793808		0.876329	0.815169		0.925174	0.816798	
NUMBER	138	147		211	74		265	20		146	139	
Z Score Test			0.073407			-1.219007			-1.386352			-0.791541
Stat Sig			---			---			---			---

Positive Z score values indicate that respondents with first MBTI preference had a higher ethical sensitivity mean than those respondents with the second MBTI preference being compared

Negative Z score values indicate that respondents with second MBTI preference had a higher ethical sensitivity mean than those respondents with the first MBTI preference being compared

Levels of Statistical Significance

99.9% level where p<.001 Test for Statistical Significance: $/Z/ > 3.270$

99.0% level where p<.01 Test for Statistical Significance: $2.575 > /Z/ > 3.270$

95.0% level where p<.05 Test for Statistical Significance: $1.960 > /Z/ > 2.575$

Levels not considered Statistically Significant for purposes of this research less than 95% where p>.05 Test Statistic: $/Z/ < 1.960$

Test for Statistical Significance for Eight MBTI Preferences Between Government and Private Industry Respondents

GOV	Extraversion(E)	Introversion (I)	Sensing (S)	Intuition (N)	Thinking(T)	Feeling (F)	Judgement (J)	Perception (P)
MEAN	5.392424	5.383478	5.311429	5.643902	5.419632	5.088889	5.314000	5.476543
STDEV	0.983762	0.794491	0.871869	0.801576	0.835394	1.085676	0.944738	0.752707
NUMBER	66	115	140	41	163	18	100	81
IND								
MEAN	5.223913	5.216327	5.184834	5.320270	5.201509	5.465000	5.180137	5.261871
STDEV	0.824228	0.920024	0.898813	0.793808	0.876329	0.815169	0.925174	0.816798
NUMBER	138	147	211	74	265	20	146	139
GOV vs IND								
Z Score Test	1.204072735	1.576134895	1.315667	2.080962	2.574278	-1.197127	1.100796	1.976694
Stat Sig	---	---	---	*	**	---	---	*

Positive Z score values indicate that Government respondents had a higher ethical sensitivity mean than Private Industry

Negative Z score values indicate that Private Industry respondents had a higher ethical sensitivity mean than Government respondents

Levels of Statistical Significance

99.9% level where p<.001 Test for Statistical Significance: /Z/ > 3.270

99.0% level where p<.01 Test for Statistical Significance: 2.575 > /Z/ > 3.270

95.0% level where p<.05 Test for Statistical Significance: 1.960 > /Z/ > 2.575

Levels not considered Statistically Significant for purposes of this research

less than 95% where p>.05 Test Statistic: /Z/ <1.960

Appendix J: Z Score Comparison of Ethical Sensitivity for MBTI Preferences for Government and Industry Respondents (N=466: 181 GOV;285 IND)

	Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25
E--GOV (N=66)										
MEAN	5.636364	5.151515	5.803030	5.984848	5.348485	5.606061	5.924242	5.530303	3.363636	5.575758
STDEV	2.035352	1.824976	1.580844	1.784484	1.868709	1.466328	1.629635	1.647559	1.902519	1.737023
I--GOV (N=115)										
MEAN	5.991304	5.113043	5.400000	5.904348	5.539130	5.521739	5.800000	5.426087	3.330435	5.808696
STDEV	1.547469	1.730861	1.761180	1.567062	1.585499	1.529521	1.528673	1.550670	1.745781	1.521170
E--IND										
MEAN	5.913043	4.557971	5.318841	6.289855	5.507246	5.057971	5.615942	5.021739	3.195652	5.76087
STDEV	1.369524	2.010985	1.951924	1.450914	1.608583	1.819473	1.817685	1.942485	1.8477	1.502088
I--IND (N=147)										
MEAN	5.843537	4.680272	5.353741	6.326531	5.340136	5.312925	5.537415	5.054422	3.006803	5.707483
STDEV	1.789240	1.972365	2.029922	1.360717	1.632280	1.750940	2.028131	1.897303	1.852420	1.704992
Z Score Tests										
E vs. I (GOV)	-1.227657	0.139082	1.582808	0.305133	-0.697212	0.366544	0.504874	0.418416	0.116411	-0.907830
Stat Sig	---	---	---	---	---	---	---	---	---	---
E vs I (IND)	0.369581	-0.517886	-0.147960	-0.219766	0.870236	-1.203944	0.344617	-0.143557	0.861237	0.280884
Stat Sig	---	---	---	---	---	---	---	---	---	---
GOV (E) vs IND (E)	-1.001263	2.101552	1.892270	-1.210354	-0.593069	2.304474	1.216955	1.943542	0.595474	-0.743034
Stat Sig	---	*	---	---	---	*	---	---	---	---
GOV (I) vs IND (I)	0.715923	1.888495	0.197242	-2.291315	0.995172	1.028770	1.194777	1.744359	1.449569	0.506717
Stat Sig	---	---	---	*	---	---	---	---	---	---

Positive Z score values indicate that Government respondents had a higher ethical sensitivity mean than Private Industry respondents for a particular question (Scenario)

Negative Z score values indicate that Private Industry respondents had a higher ethical sensitivity mean than Government respondents for a particular question (Scenario)

Levels of Statistical Significance

99.9% level where p<.001 Test for Statistical Significance: $|Z| > 3.270$

99.0% level where p<.01 Test for Statistical Significance: $2.575 > |Z| > 3.270$

95.0% level where p<.05 Test for Statistical Significance: $1.960 > |Z| > 2.575$

Levels not considered Statistically Significant for purposes of this research

less than 95% where p>.05 Test Statistic: $|Z| < 1.960$

	Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25
S--GOV (N=140)										
MEAN	5.900000	5.128571	5.407143	5.800000	5.392857	5.414286	5.764286	5.364286	3.257143	5.685714
STDEV	1.646011	1.798652	1.790850	1.808056	1.682309	1.577657	1.589583	1.610267	1.828517	1.653798
N--GOV (N=41)										
MEAN	5.731707	5.121951	6.024390	6.390244	5.731707	6.024390	6.121951	5.804878	3.634146	5.853659
STDEV	2.061849	1.646134	1.274516	0.737497	1.717911	1.106522	1.452500	1.452920	1.684579	1.424096
S--IND (N=211)										
MEAN	5.829384	4.606635	5.222749	6.298578	5.450237	5.151659	5.526066	5.052133	3.028436	5.682464
STDEV	1.69854	2.017012	2.093676	1.427935	1.609832	1.816783	1.962271	1.944989	1.828126	1.603159
N--IND (N=74)										
MEAN	6.013514	4.662162	5.662162	6.337838	5.337838	5.297297	5.716216	5.000000	3.297297	5.878378
STDEV	1.265920	1.918026	1.624108	1.337315	1.657503	1.701971	1.824643	1.843166	1.906943	1.621370
Z Score Tests										
S vs N (GOV)	0.479778	0.022166	-2.468448	-3.084564	-1.115965	-2.795183	-1.356646	-1.665183	-1.235601	-0.639350
Stat Sig	---	---	**	**	---	**	---	---	---	---
S vs N (IND)	-0.979617	-0.211396	-1.849940	-0.213446	0.505666	-0.622206	-0.756138	0.206334	-1.054723	-0.896976
Stat Sig	---	---	---	---	---	---	---	---	---	---
GOV (S) vs IND (S)	0.388578	2.535063	0.882248	-2.744002	-0.318297	1.436564	1.250375	1.635004	1.147543	0.018248
Stat Sig	---	*	---	*	---	---	---	---	---	---
GOV (N) vs IND (N)	-0.795972	1.351121	1.320346	0.270864	1.192412	2.767838	1.306457	2.579047	0.979131	-0.084794
Stat Sig	---	---	---	---	---	**	---	**	---	---

Positive Z score values indicate that Government respondents had a higher ethical sensitivity mean than Private Industry respondents for a particular question (Scenario)

Negative Z score values indicate that Private Industry respondents had a higher ethical sensitivity mean than Government respondents for a particular question (Scenario)

Levels of Statistical Significance

99.9% level where p<.001 Test for Statistical Significance: $|Z| > 3.270$

99.0% level where p<.01 Test for Statistical Significance: $2.575 > |Z| > 3.270$

95.0% level where p<.05 Test for Statistical Significance: $1.960 > |Z| > 2.575$

Levels not considered Statistically Significant for purposes of this research

less than 95% where p>.05 Test Statistic: $|Z| < 1.960$

	Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25
T--GOV (N=163)										
MEAN	5.907975	5.177914	5.595092	5.944785	5.503067	5.576687	5.858896	5.490798	3.380368	5.760736
STDEV	1.724228	1.735327	1.631624	1.689662	1.668052	1.494416	1.547109	1.553046	1.819675	1.609518
F--GOV (N=18)										
MEAN	5.444444	4.666667	5.111111	5.833333	5.166667	5.333333	5.722222	5.222222	3.000000	5.388889
STDEV	1.916560	1.970369	2.272311	1.200490	1.917412	1.608799	1.742397	1.864705	1.608799	1.539247
T--IND (N=265)										
MEAN	5.867925	4.592453	5.332075	6.290566	5.392453	5.181132	5.562264	5.030189	3.041509	5.724528
STDEV	1.619457	2.005660	2.013945	1.438942	1.641305	1.797837	1.937687	1.920541	1.861231	1.629383
F--IND (N=20)										
MEAN	6.000000	5.000000	5.400000	6.550000	5.800000	5.300000	5.750000	5.150000	3.850000	5.850000
STDEV	1.297771	1.747178	1.667018	0.759155	1.281447	1.657519	1.802776	1.899446	1.531253	1.308877
Z Score Tests										
Tvs F (GOV)	0.983113	1.056511	0.878966	0.356785	0.715070	0.613210	0.319188	0.588932	0.938951	0.968143
Stat Sig	---	---	---	---	---	---	---	---	---	---
Tvs F (IND)	-0.430537	-0.994872	-0.172946	-1.355542	-1.341670	-0.307361	-0.446650	-0.271798	-2.239687	-0.405643
Stat Sig	---	---	---	---	---	---	---	---	*	---
GOV (T) vs IND (T)	0.238772	3.191366	1.478693	-2.172682	0.670262	2.457947	1.746319	2.718129	1.854524	0.224936
Stat Sig	---	**	---	*	---	*	---	**	---	---
GOV (F) vs IND (F)	-1.034719	-0.549247	-0.442717	-2.171905	-1.183535	0.062864	-0.04827	0.118164	-1.663702	-0.989216
Stat Sig	---	---	---	*	---	---	---	---	---	---

Positive Z score values indicate that Government respondents had a higher ethical sensitivity mean than Private Industry respondents for a particular question (Scenario)

Negative Z score values indicate that Private Industry respondents had a higher ethical sensitivity mean than Government respondents for a particular question (Scenario)

Levels of Statistical Significance

99.9% level where p<.001 Test for Statistical Significance: $|Z| > 3.270$

99.0% level where p<.01 Test for Statistical Significance: $2.575 > |Z| > 3.270$

95.0% level where p<.05 Test for Statistical Significance: $1.960 > |Z| > 2.575$

Levels not considered Statistically Significant for purposes of this research

less than 95% where p>.05 Test Statistic: $|Z| < 1.960$

	Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25
J--GOV (N=100)										
MEAN	5.790000	5.020000	5.400000	5.860000	5.440000	5.460000	5.970000	5.280000	3.140000	5.780000
STDEV	1.816284	1.917385	1.752343	1.752459	1.713405	1.546714	1.374038	1.723750	1.814754	1.599116
P--GOV (N=81)										
MEAN	5.950617	5.259259	5.728395	6.024691	5.506173	5.666667	5.691358	5.691358	3.592593	5.654321
STDEV	1.657568	1.547399	1.635637	1.508106	1.674242	1.449138	1.765234	1.366034	1.759103	1.613695
J--IND (N=146)										
MEAN	5.883562	4.575342	5.280822	6.280822	5.410959	5.184932	5.390411	5.136986	3.013699	5.643836
STDEV	1.582274	1.950546	2.033320	1.489009	1.728748	1.781140	2.105406	1.866696	1.677380	1.744903
P--IND (P=139)										
MEAN	5.870504	4.669065	5.395683	6.338129	5.431655	5.194245	5.769784	4.935252	3.187050	5.827338
STDEV	1.618886	2.033732	1.947197	1.310791	1.503862	1.797251	1.703860	1.967889	2.016484	1.449278
Z Score Tests										
J vs P (GOV)	-0.620940	-0.929033	-1.300785	-0.679234	-0.261646	-0.925639	1.163541	-1.791041	-1.696921	0.523118
Stat Sig	---	---	---	---	---	---	---	---	---	---
J vs P (IND)	0.068820	-0.396705	-0.487142	-0.345283	-0.107972	-0.043918	-1.675838	0.886994	-0.786950	-0.967616
Stat Sig	---	---	---	---	---	---	---	---	---	---
GOV (J) vs IND (J)	-0.417849	1.774056	0.490545	-1.964292	0.130101	1.287387	2.611901	0.617841	0.552782	0.631952
Stat Sig	---	---	---	*	---	---	**	---	---	---
GOV (P) vs IND (P)	0.348733	2.423293	1.354839	-1.558646	0.330372	2.130620	-0.321907	3.351448	1.561438	-0.795878
Stat Sig	---	*	---	---	---	*	---	***	---	---

Positive Z score values indicate that Government respondents had a higher ethical sensitivity mean than Private Industry respondents for a particular question (Scenario)

Negative Z score values indicate that Private Industry respondents had a higher ethical sensitivity mean than Government respondents for a particular question (Scenario)

Levels of Statistical Significance

99.9% level where p<.001 Test for Statistical Significance: $|Z| > 3.270$

99.0% level where p<.01 Test for Statistical Significance: $2.575 > |Z| > 3.270$

95.0% level where p<.05 Test for Statistical Significance: $1.960 > |Z| > 2.575$

Levels not considered Statistically Significant for purposes of this research

less than 95% where p>.05 Test Statistic: $|Z| < 1.960$

Appendix K: Z Score Comparison of Ethical Sensitivity for the MBTI Cognitive Sets for Government and Industry Respondents (N=466: 181 GOV; 285 IND)

Test for Statistical Significance Between Cognitive Sets for Government Respondents

GOV	Sensing-Thinking (ST) (ST)	Sensing-Feeling (SF) (SF)	Intuition-Thinking (NT) (NT)	Intuition-Feeling (NF) (NF)	ST vs. SF	ST vs NT	ST vs. NF	SF vs. NT	SF vs. NF	NT vs. NF
MEAN	5.319380	5.218182	5.800000	4.885714						
STDEV	0.862145	1.020606	0.595437	1.234812						
NUMBER	129	11	34	7						
Z Score Test					0.319289	-3.777301	0.917136	-1.794487	0.594719	1.913708
Stat Sig					---	***	---	---	---	---

Test for Statistical Significance Between Cognitive Sets for Private Industry Respondents

IND	Sensing-Thinking (ST) (ST)	Sensing-Feeling (SF) (SF)	Intuition-Thinking (NT) (NT)	Intuition-Feeling (NF) (NF)	ST vs. SF	ST vs NT	ST vs. NF	SF vs. NT	SF vs. NF	NT vs. NF
MEAN	5.164179	5.600000	5.311111	5.372727						
STDEV	0.894098	0.940449	0.817769	0.670956						
NUMBER	201	10	63	11						
Z-Score					-1.433578	-1.216344	-0.984169	0.917874	0.631874	-0.271406
ST SIG					---	---	---	---	---	---

Positive Z score values indicate that respondents with first Cognitive Set had a higher ethical sensitivity mean than those respondents with the second Cognitive Set being compared

Negative Z score values indicate that respondents with second Cognitive Set had a higher ethical sensitivity mean than those respondents with the first Cognitive Set being compared

Levels of Statistical Significance

99.9% level where p<.001 Test for Statistical Significance: /Z/ > 3.270

99.0% level where p<.01 Test for Statistical Significance: 2.575 > /Z/ > 3.270

95.0% level where p<.05 Test for Statistical Significance: 1.960 > /Z/ > 2.575

Levels not considered Statistically Significant for purposes of this research

less than 95% where p>.05 Test Statistic: /Z/ <1.960

Test for Statistical Significance Between Cognitive Sets for Government versus Private Industry Respondents

GOV	Sensing-Thinking (ST)	Sensing-Feeling (SF)	Intuition-Thinking (NT)	Intuition-Feeling (NF)
MEAN	5.319380	5.218182	5.800000	4.885714
STDEV	0.862145	1.020606	0.595437	1.234812
NUMBER	129	11	34	7
IND				
MEAN	5.164179	5.600000	5.311111	5.372727
STDEV	0.894098	0.940449	0.817769	0.670956
NUMBER	201	10	63	11
Z-Score	1.572656	-0.892209	3.370220	-0.957418
Stat Sig	---	---	***	---

Positive Z score values indicate that Government respondents had a higher ethical sensitivity mean than Private Industry

Negative Z score values indicate that Private Industry respondents had a higher ethical sensitivity mean than Government respondents

Levels of Statistical Significance

99.9% level where p<.001 Test for Statistical Significance: /Z/ > 3.270

99.0% level where p<.01 Test for Statistical Significance: 2.575 > /Z/ > 3.270

95.0% level where p<.05 Test for Statistical Significance: 1.960 > /Z/ > 2.575

Levels not considered Statistically Significant for purposes of this research

less than 95% where p>.05 Test Statistic: /Z/ <1.960

Appendix L: Z Score Comparison of Ethical Sensitivity for Dominant and Auxiliary Functions for Government and Industry Respondents (N=466: 181 GOV; 285 IND)

	Sensors	Intuitives	Sensors vs Intuitives	Thinkers	Feelers	Thinkers vs Feelers
GOV						
MEAN	5.35500	5.64000		5.44085	4.75000	
STDEV	0.77442	0.66285		0.93771	1.15302	
NUMBER	80	20		71	10	
Z SCORE TEST			-1.66032			1.81219
Stat Sig			---			---
IND						
MEAN	5.17900	5.36739		5.20379	5.14286	
STDEV	0.98691	0.80334		0.80347	0.94667	
NUMBER	100	46		132	7	
Z SCORE TEST			-1.22194			0.16713
Stat Sig			---			---
GOV vs IND						
Z SCORE TEST	1.34057	1.43682		1.80361	-0.76902	
Stat Sig	---	---		---	---	

	N DOM	N AUX	N DOM vs N AUX
GOV			
MEAN	5.64000	5.64762	
STDEV	0.66285	0.93146	
NUMBER	20	21	
Z SCORE TEST			-0.03029
Stat Sig			---
IND			
MEAN	5.36739	5.20345	
STDEV	0.80334	0.86043	
NUMBER	46	28	
Z SCORE TEST			0.81494
Stat Sig			---

Positive Z score values indicates the first function preference being compare had a higher ethical sensitivity mean than the second function

Positive Z score values indicates thesecond function preference being compare had a higher ethical sensitivity mean than the first function

Levels of Statistical Significance

99.9% level where p<.001 Test for Statistical Significance: /Z/ > 3.270

99.0% level where p<.01 Test for Statistical Significance: 2.575 > /Z/ > 3.270

95.0% level where p<.05 Test for Statistical Significance: 1.960 > /Z/ > 2.575

Levels not considered Statistically Significant for purposes of this research

less than 95% where p>.05 Test Statistic: /Z/ <1.960

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Vitae

Captain Ronald A. Ortiz was born on 10 June 1964 in Ft. Benning, GA. He graduated from Theodore Roosevelt High School in San Antonio, TX in 1982, before beginning his undergraduate studies at Southern Methodist University (SMU) on an AFROTC scholarship. While at SMU, he earned a Bachelor of Science in Engineering Management in August of 1986. Upon graduation, he received an Air Force reserve commission and was assigned to the Electronic Systems Division, Hanscom AFB, MA where he served from January 1987 to May 1991. His first duty position in January of 1987 was as a lead negotiator in the Research and Development Contracting Directorate supporting the SDI office, Rome Air Development Center, and the Air Force Geophysics Laboratory. In 1988, he was promoted to the rank of first lieutenant and selected to be a lead negotiator for the Directorate of Tactical Systems. His responsibilities included supporting Tactical Air Command requirements by planning, negotiating, and managing several multi-million dollar programs for the development and production of communication, command, and control systems. In 1990, he was promoted to the rank of Captain and selected to be a lead negotiator supporting Tactical Air Command requirements for computer based tools to help air crews conduct effective and timely pre-mission and post-mission review for air training exercises and combat missions. In May of 1991, he was selected to attend the School of Systems and Logistics, Air Force Institute of Technology. Following graduation he will proceed to the Defense Plant Representative Office (DPRO) at the Martin Marietta facility in Denver, Colorado where he will serve as an administrative contracting officer.

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13. ABSTRACT *(Maximum 200 words)* This research establishes a significant relationship between ethical sensitivity (the perception that a situation requires ethical consideration), and personality type, as characterized by the Myers-Briggs Type Indicator (MBTI). A simple random sampling from the membership of the National Contract Management Association yielded 466 responses. The sample was analyzed by segmentation into government (181) and industry (285) respondents. The average ethical sensitivity response of 5.28 out of seven is considered high. Differences in perceptions of ethical sensitivity were significant among government and industry, and among ten scenarios often faced by contracting professionals. In the majority of scenarios, the government segment reported higher ethical sensitivities than industry. Industry reported higher ethical sensitivities to one question involving an error causing a loss to the contractor. There was a significant difference in the MBTI distribution of this sample compared to that of the Center for the Application of Psychological Type. The research sample contained more introverted, sensing, and thinking types. Among the government segment, those favoring intuition, and the intuition-thinking cognitive set of preferences, exhibit higher degrees of ethical sensitivity than other personality types. Recommendations are provided.

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